

Johnnie M. Wood
Houston Lumber Co.

1939

Standard Specifications

for

**SOUTHERN PINE
LUMBER**

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Effective July 1, 1939
(Supersedes all previous editions)

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Conforming to
American Lumber Standards



SOUTHERN PINE INSPECTION BUREAU
OF THE

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SOUTHERN PINE ASSOCIATION

NEW ORLEANS, LA.

NOTICE

By action of its Board of Governors, the Southern Pine Inspection Bureau of the Southern Pine Association on May 28, 1940, adopted these rules as the official grading rules of the Bureau. Wherever reference is made in these rules to the Southern Pine Association, it shall be understood to mean the Southern Pine Inspection Bureau of the Association.

Southern Pine Inspection Bureau

of the

Southern Pine Association

New Orleans, La.

P R E F A C E

SOUTHERN PINE LUMBER is produced in unlimited quantities by manufacturers who are under the grading supervision of the Southern Pine Association, with mills located in the States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia. A list of these manufacturers will be supplied upon request.

Southern Pine lumber is graded and classified according to these Standard Specifications, and the one recognized agency for their authoritative interpretation and application is the Southern Pine Association. Unless otherwise indicated, sales of grades designated in these rules are subject to all of the applicable shipping and inspection provisions, which have been recognized by the lumber trade for many years.

Buyers of Southern Pine lumber are urged to familiarize themselves with these rules in order that all of the provisions may be clearly understood.

SOUTHERN PINE ASSOCIATION

New Orleans, La.

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GRADING RULES

for

Southern Yellow Pine Lumber

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Southern Pine Association

Conforming to

AMERICAN LUMBER STANDARDS

(Except Where Otherwise Noted)

GENERAL INSTRUCTIONS

6/19/40

1. Southern Pine lumber, which includes timber, shall be graded and classified according to the following rules and specifications, and dressed lumber shall conform to the tables of minimum sizes of American Lumber Standards—except where otherwise expressly stipulated.

DEFINITIONS

2. The following definitions are Southern Pine Association standards and are used in all specifications covering Southern Pine lumber in any sizes:

3. A characteristic or cause for grade limitation in lumber as herein referred to is defined as any imperfection occurring in or on lumber that mars its appearance or lowers some of its strength, durability, or utility values.

4. The commonly recognized characteristics and causes for grade limitation occurring in Southern Pine lumber are:

Checks	Pitch Streaks
Decay	Pith
Holes	Shakes
Knots	Splits
Mismanufacture	Stain or Discoloration
Pitch	Wane
Pitch Pockets	Warp

CHECKS

5. A **check** is a lengthwise separation of the wood, most of which occurs across the rings of annual growth.

6. A **surface check** occurs on the surface of a piece.

7. A **small surface check** is a perceptible opening not over 4" long.

8. A **medium surface check** is not over 1/32" wide and over 4" but not more than 10" long.

9. A **large surface check** is over 1/32" wide and over 10" long.

10. An **end check** occurs on an end of a piece.

11. A **through check** extends from one surface through the piece to the opposite surface or to an adjoining surface.

12. A **heart check** starts at the pith and extends toward but not to the surface.

DECAY

13. **Decay** is a disintegration of the wood substance due to the action of wood-destroying fungi. It is also known as "dote" and "rot."

14. **Firm red heart** is a stage of incipient decay characterized by a reddish color produced in the heartwood, which does not unfit the wood for the majority of yard purposes.

15. **Incipient decay** is the early stage of decay in which the disintegration has not proceeded far enough to soften or otherwise change the hardness of the wood perceptibly. It is usually

accompanied by a slight discoloration or bleaching of the wood.

16. **Advanced** (or typical) **decay** is the older stage of decay in which the disintegration is readily recognized because the wood has become punky, soft and spongy, stringy, pitted, or crumbly. Decided discoloration or bleaching of the rotted wood is often apparent. ~~Unsound red heart is a typical example of advanced decay.~~

HOLES

17. **Holes** may extend partially or entirely through a piece and be from any cause. When holes are permitted, the average of the maximum and minimum diameters measured at right angles to the direction of the hole shall be used in measuring the size, unless otherwise stated.

18. A **pin hole** is not over $\frac{1}{16}$ " in diameter.

19. A **medium hole** is over $\frac{1}{16}$ ", but not more than $\frac{1}{4}$ " in diameter.

20. A **large hole** is over $\frac{1}{4}$ " in diameter.

KNOTS

21. A **knot** is a segment of a branch or limb embedded in the tree which has been cut through in the process of lumber manufacture. Knots are classified according to size, form, quality and occurrence. The average of the maximum and minimum diameters shall be used in measuring the size of knots, unless otherwise stated.

22. A **pin knot** is not over $\frac{1}{2}$ " in diameter.

23. A **small knot** is over $\frac{1}{2}$ ", but not more than $\frac{3}{4}$ " in diameter.

24. A **medium knot** is over $\frac{3}{4}$ ", but not more than $1\frac{1}{2}$ " in diameter.

25. A **large knot** is over $1\frac{1}{2}$ " in diameter.

26. A **round knot** is oval or circular in form.

27. A **spike knot** is a segment of a branch or limb sawed in a lengthwise direction.

28. A **sound knot** is solid across its face, as hard as the surrounding wood, and shows no indications of decay. It may vary in color from red to black.

29. A **firm knot** is solid across its face, but contains incipient decay.

30. A **decayed knot** is softer than the surrounding wood and contains advanced decay.

31. A **tight knot** is so fixed by growth or position that it will firmly retain its place in the piece.

32. An **intergrown knot** has rings of annual growth completely intergrown with those of the surrounding wood.

33. A **water-tight knot** has rings of annual growth completely intergrown with those of the surrounding wood on one surface of the piece and which is sound on that surface.

34. An **encased knot** is one whose rings of annual growth are not intergrown with those of the surrounding wood. The encasement may be partial or complete.

35. A **loose knot** is not held firmly in place by growth or position and cannot be relied upon to remain in place.

36. A **pith knot** is a sound knot with a pith hole not more than $\frac{1}{4}$ " in diameter.

37. A **hollow knot** is an apparently sound knot having in it a hole in excess of $\frac{1}{4}$ " diameter.

6/20/40

MISMANUFACTURE

38. **Mismanufacture** includes all imperfections or blemishes which are produced in manufacturing, such as those defined below.

39. **Chipped grain** means that a part of the surface is chipped or broken out in very short particles below the line of cut. It should not be classed as torn grain, and, as usually found, shall not be considered unless it is present in excess of 25% of the area.

40. **Loosened grain** means that a small portion of the wood is loosened but not displaced.

41. **Raised grain** is a roughened condition of the surface of dressed lumber in which the hard summerwood is raised above the softer springwood, but not torn loose from it.

42. **Torn grain** means that a part of the wood is torn out in dressing, and in depth is of 4 distinct characters: slight, medium, heavy and deep.
43. **Slight torn grain** is not over $1/32$ " deep.
44. **Medium torn grain** is over $1/32$ ", but not more than $1/16$ " deep.
45. **Heavy torn grain** is over $1/16$ ", but not more than $1/8$ " deep.
46. **Deep torn grain** is over $1/8$ " deep.
47. A **skip** is an area on a piece that failed to surface.
48. **Slight skip** is an area not exceeding six times the width of a piece that the planer knife failed to surface smoothly.
49. **Hit and miss** is a series of surfaced areas with skips not more than $1/16$ " deep between them.
50. **Hit or miss** is to skip or surface a piece for a part or the whole of its length, provided it is nowhere more than $1/16$ " scant.
51. **Variation in sawing** is a deviation from the line of cut.
52. **Slight variation** is not more than $1/16$ " in 1-inch lumber, $1/8$ " in 2", $3/16$ " in 3" to 7", and $1/4$ " in 8" and up.
53. **Miscut lumber** is that which has a greater variation in thickness or width at different places on the piece than specified for variation in sawing.
54. A **machine burn** is a darkening or charring due to over-heating by machine knives.
55. A **machine gouge** is a groove due to the machine cutting below the desired line of cut.
56. **Mismatched lumber** is worked lumber that does not fit tightly at all points of contact between adjoining pieces, or in which the surface of adjoining pieces are not in the same plane.

PITCH

57. **Pitch** is an accumulation of resin in the wood cells in a more or less irregular patch.

58. **Light pitch** is the lightly evident presence of pitch.

59. **Medium pitch** is a slightly more evident trace of pitch than is the light pitch.

60. **Heavy pitch** is the very evident presence of pitch showing by its color and consistency.

61. **Massed pitch** is a clearly defined accumulation of solid pitch.

PITCH STREAKS

62. A **pitch streak** is a well-defined accumulation of pitch in a more or less regular streak.

63. A **small pitch streak** is not over $1/12$ the width by $1/6$ the length of the surface on which it occurs.

64. A **medium pitch streak** is over $1/12$ but not more than $1/6$ the width by over $1/6$ but not more than $1/3$ the length of the surface on which it occurs.

65. A **large pitch streak** is over $1/6$ the width by $1/3$ the length of the surface on which it occurs.

PITCH POCKETS

66. A **pitch pocket** is a well defined opening between rings of annual growth, usually containing, or which has contained, more or less pitch, either solid or liquid. Bark also may be present in the pocket.

67. A **very small pitch pocket** is not over $1/8$ " wide and not over 2" long.

68. A **small pitch pocket** is not over $1/8$ " wide and not over 4" long, or not over $1/4$ " wide and not over 2" long.

69. A **medium pitch pocket** is not over $1/8$ " wide and not over 8" long, or not over $3/8$ " wide and not over 4" long.

70. A **large pitch pocket** exceeds the maximum width or length stated as permissible for a medium pitch pocket.

71. A **closed pitch pocket** does not show an opening on both sides of the piece.

72. A **through pitch pocket** shows an opening on both sides of a piece, and when $\frac{1}{8}$ " or more in width, it shall be considered the same as a knot hole of equal size.

PITH

73. **Pith** is the small soft core occurring in the structural center of a log. The wood immediately surrounding the pith often contains small checks, shakes, or numerous pin knots, and is discolored; any such combination is known as **heart center**.

SHAKES

74. A **shake** is a lengthwise separation along the grain, most of which occurs between the rings of annual growth.

75. A **slight shake** has more than a perceptible opening, but not over $1/32$ " wide.

76. A **medium shake** is over $1/32$ ", but not more than $\frac{1}{8}$ " wide.

77. A **through shake** extends from one surface through the piece to the opposite surface or to an adjoining surface.

78. A **pith shake** extends across the rings of annual growth in one or more directions from the pith toward, but not to, the surface of a piece; can be distinguished from season check by the fact that its greatest width is nearest the pith, whereas the greatest width of a season check is ordinarily at the surface of a piece, and when a piece has boxed pith the greatest width of a season check is farthest from the pith.

SPLITS

79. A **split** is a lengthwise separation of the wood extending from one surface through the piece to the opposite surface or to an adjoining surface.

80. A **short split** does not exceed in length either the width of a piece or $1/6$ its length.

81. A **medium split** exceeds in length the width of a piece but does not exceed $1/6$ its length.

82. A **long split** exceeds in length $\frac{1}{6}$ the length of a piece.

STAIN (or Discoloration)

83. **Stain** is a discoloration, occurring on or in lumber, of any color other than the natural color of the piece on which it appears.

84. **Light stain** is a slight difference in color which will not materially impair the appearance of the piece if given a natural finish.

85. **Medium stain** is a pronounced difference in color which, although it does not obscure the grain of the wood, would customarily be objectionable in a natural but not in a painted finish.

86. **Heavy stain** is a difference in color so pronounced as practically to obscure the grain of the wood.

WANE

87. **Wane** is bark, or the lack of wood from any cause, on the surface of lumber.

WARP

88. **Warp** is any variation from a true or plane surface. It includes bow, crook, cup, or any combination thereof.

89. **Crook** is a deviation edgewise from a straight line drawn from end to end of a piece and is measured at the point of greatest distance from the straight line.

90. **Cup** is a curve across the grain or width of a piece. It is measured at the point of greatest deviation from a straight line drawn from edge to edge of a piece. It is known as slight, medium, and deep. Based on a piece 12 inches wide, the distances for the different degrees of cup shall be: for **slight cup**, a maximum of $\frac{1}{4}$ inch; **medium cup**, $\frac{3}{8}$ inch; and **deep cup**, $\frac{1}{2}$ inch. Narrower or wider pieces may have proportionate amounts of cup.

GENERAL GRADING PROVISIONS

91. All lumber is graded with reference to its suitability for general use. Each piece is considered and its grade determined by its general character, including the location and sum of all imperfections. Lumber not conforming to standard sizes or grades shown herein and that intended for special uses shall be covered by special contract and inspection.

92. No arbitrary rules for inspection of lumber can be maintained with satisfaction. The variations from any given rule are suggested by practical common sense; nothing more definite than the general features of different grades should be attempted by rules of inspection.

93. The grading of lumber cannot be considered an exact science, because it is based on a visual inspection of each piece, and on the judgment of the grader. The provisions of these specifications, however, are sufficiently explicit to establish 5 per cent below grade as a reasonable variation in judgment between inspectors and graders.

Memorize
94. Except in Dimension, Heavy Joists and all timbers, the grade of yard lumber, rough or surfaced two sides, shall be determined from the better side of the piece; lumber which is surfaced one side only shall be graded from the surfaced side; and in lumber, rough or dressed two sides, or common boards center matched, or shiplapped and S2S, the better side shall be considered the face side.

95. The rules prescribe the number, extent, and limitations of the characteristics permitted in the poorest pieces admissible in each grade. A grade should be representative, however, and not made up of only low line pieces.

96. The characteristics and limitations in any grade vary in number as the area of the piece to be graded increases or diminishes in respect to the basic size or area specified, but their size must not exceed that permitted in the grading rules.

97. When characteristics not described in these grading rules are encountered, they will be considered as equivalent in damaging effect to the characteristics specified as applying to the grade under consideration.

98. "Equivalent" means equal, and in construing and applying these rules, the characteristics permitted, if not specified, are understood to be equivalent in damaging effect to those mentioned as applying to the lumber under consideration.

99. Characteristics permitted and limitations prescribed in rough lumber shall be the same as those applying to dressed lumber of like kind and grade, and in addition, such others as will disappear in dressing lumber to standard sizes shall be allowed.

100. Mismanufacture in dressed lumber, such as torn grain, loosened grain, raised grain, skips in dressing, wane, broken knots, mismatching, insufficient tongue, groove, or lap, etc., shall be considered causes for grade limitation, and will reduce the grade according as they are slight or serious in the effects on the use of the lumber.

101. When special grades or patterns of lumber are ordered, unless a special agreement is made, it shall be permissible to ship all of the lower grades that develop in their manufacture, at the proper differential in prices for such grades, provided they do not exceed 20 per cent of the quantity shipped.

102. Southern Pine lumber may be classified as to grain as Edge (Vertical or Rift) Grain and Flat (Slash) Grain, and Edge Grain must have an average of at least six annual rings per inch across the face at every point in the length and the rings (so called grains) must form an angle of 45 degrees or more with the surface of the piece. When the angle becomes less than 45 degrees at any point, the lumber may be classed as Flat (Slash) Grain or Near-Rift, as the case may be. (See rules on Flooring.)

103. A provision for **straight grain** shall be construed as limiting the slope of grain to 1" in each 20" of length.

104. **Heart face** lumber is that which shows all heartwood on the face side.

105. Orders for lumber under a heartwood specification, other than heart face or all heart, shall state the amount or percentage of heartwood desired and how it shall be measured, either girth measurement or facial area.

106. Lumber ordered under a cubical content heart specification shall be covered by special contract and inspection.

107. Lumber shipped under a heartwood, sapwood, or grain classification shall conform to the specifications for such lumber, and in addition, shall conform to the provisions of the grade as specified.

108. Sapwood shall be admitted in any of the grades described in these rules, except as it may be restricted under provisions for heartwood content.

109. Unless otherwise specified, the grade provisions for stain shall apply regardless of method of drying. Lumber which is stained in excess of the grade provisions, may be classified as of its actual grade in other respects, provided it is sold and designated as "stained" lumber.

NOTE: Blue stain is not decay nor incipient decay. It occurs in sapwood if not dried rapidly enough, and is only harmful to appearance if not painted.

110. Firm red heart shall not be considered an imperfection unless it is specifically limited in the grade under consideration.

111. The common marketing practice for "A" and "B" grades is to combine them into one grade, which is designated as "B&Better," but mixed grades other than B&Btr. are not Southern Pine standard grades.

Studies

YARD AND INDUSTRIAL SIZES

Dressed Sizes

112. The terms "standard yard board," "standard industrial board," "standard yard dimension" and "standard industrial dimension," are the designations for 1" boards and 2" dimension, respectively.

113. 25/32", S1S or S2S (measured at Southern Pine Association moisture content) shall be the thickness for the standard yard board; 26/32", S1S or S2S, for the standard industrial board.

114. 1 5/8", S1S or S2S (measured at Southern Pine Association moisture content) shall be the thickness for standard yard dimension not more than 12" wide; 1 3/4", S1S or S2S, for standard industrial dimension.

115. The widths of Finish and Common Strips, Boards and Dimensions S1E or S2E, (measured at proper moisture content for each grade) shall be 3/8" off on lumber of nominal widths less than 8", and 1/2" off on lumber of nominal widths of 8" to 12". (Note: Widths of Finish in Southern Pine are in excess of minimum widths of Finish in American Lumber Standards.)

116. The thicknesses and widths of lumber, S1S or S2S and/or S1E or S2E, and for D&M and Shiplap, are to be found under the description of each item of lumber.

117. Mismatch, due to change in moisture content, not to exceed 1/32" shall be permissible in "C" and better Flooring, Ceiling and Drop Siding. Variation in width not to exceed 1/32" shall be permissible in "B" grade, and not to exceed 1/16" in "C" grade.

118. In tongued and grooved Flooring and Ceiling 5/16", 7/16", and 9/16" thick, the tongue shall be 3/16" wide, and over-all widths 1/16" less than shown in table of sizes in each grade rule, and in shiplapped Ceiling of the same thickness, the lap shall be 1/8" wide, and the over-all width 1/8" less than shown in table

of sizes in each grade rule. (See cuts on pages 92 and 93.)

119. In all other patterned lumber, $11/16"$, $3/4"$, $1"$, $1\frac{1}{4}"$, and $1\frac{1}{2}"$ thick, the tongue shall be $1/4"$ wide in tongued and grooved lumber, and the lap $3/8"$ wide in shiplapped lumber, except as provided in paragraph 252, with the over-all widths as shown in table of sizes in grade rule. (See cuts on pages 91, 93 to 103.)

Rough Dry Sizes

120. The standard rough dry thickness of the Standard Yard Finish, Common Strips and Boards, $1"$ nominal thickness, shall be not less than $29/32"$, allowing that 20 per cent of the shipment may be not less than $28/32"$; and the standard rough dry thickness of the Standard Industrial Finish, Common Strips and Boards shall be not less than $30/32"$, allowing that 10 percent of the shipment may be not less than $29/32"$.

121. The standard rough dry thickness of Finish, Common Strips and Boards, and Dimension of Standard sizes $1\frac{1}{4}"$ or more, nominal thickness, shall be not less than $1/8"$ thicker than the corresponding standard finished dry thickness, allowing that 20% of the shipment may be not less than $3/32"$ thicker than the corresponding standard finished dry thickness.

122. The standard rough widths of Finish, Common Strips and Boards, and Dimension, dry, shall not be more than $1/4"$ less than the nominal widths for $7"$ and narrower, and shall not be more than $3/8"$ less than the nominal widths for $8"$ to $12"$. (It should be noted that standard rough widths for Finish are in excess of the minimum widths required by American Lumber Standards.)

123. Rough lumber over $2"$ and under $5"$, nominal thickness, green or dry, shall not be less in thickness than $1/4"$ off nominal; nominal widths of $7"$ and narrower shall not be less in width than $1/4"$ off nominal, and the nominal widths of $8"$ and over shall not be less than $3/8"$ off nominal.

124. Rough lumber, when so specified, if in excess of the nominal dimensions for dry or green lumber, may be surfaced to such nominal dimensions and when surfaced shall be considered as rough lumber.

125. Rough lumber of nominal thicknesses of 2" and less, which is $\frac{1}{2}$ " or more in excess of nominal thickness, may, at the option of the buyer, be rejected, or be accepted as the next lower grade.

Lengths

126. Except as may be hereinafter specified, standard lengths for Boards, Strips, Dimension and Joists are 4' to 20', inclusive, in multiples of 2' and for Finish, Flooring, Ceiling, Siding, Partition, Casing, Base, Window and Door Jambs, etc., 4' to 20', inclusive, in multiples of 1'. Longer or shorter lengths than those herein specified are special. Special fractional lengths, when ordered, will be counted as the next higher standard length.

127. In shipments that permit limited percentages of short lengths such as 4', 6' and 8', any unfilled portion of the shortest length or lengths permitted may be furnished in the next longer length or lengths.

128. Unless otherwise specifically agreed upon, the proportion of short lengths allowed in the various grades may be included in all shipments; however, it should be understood that an order reading "10' to 20'," or any other combination of lengths, where minimum and maximum lengths are specified, will not permit of the inclusion of any lengths shorter or longer than those specified in the order.

DESCRIPTION, MEASUREMENT AND TALLY

129. The thicknesses and widths of yard lumber, as specified under the description of items, shall be considered standard. All other sizes shall be considered special. Lumber of standard size shall be described by those standard dimensions.

130. Board measure is the term used to indicate that a board foot is the unit of measurement of lumber. A board foot is the quantity of lumber contained in, or derived (by drying and/or planing and/or working) from a piece of rough green lumber 1" thick, 12" wide and 1' long, or its equivalent in thicker, wider, narrower or longer lumber.

131. Except Moulding, lumber shall be tallied **board measure**. The board measurement of rough dry or dressed lumber shall be based on the corresponding nominal dimensions of rough green lumber. The board measurement of lumber of thickness less than 1" shall be based on the nominal surface dimensions (i.e., width and length.)

132. Lumber finished to special size shall be tallied as of the standard rough size (known as nominal) necessarily used in its manufacture.

133. The actual thickness and width of lumber shipped, when not of standard size, shall be indicated on the invoice.

134. Lumber shipped on stock sizes shall be tallied by the number of pieces of each size and length in the shipment.

135. In shipments measured on board measure, a piece tally in board feet shall be made.

136. In shipments of lumber measured with a board rule on actual widths, pieces measuring to the even $\frac{1}{2}'$ shall be alternately counted as of the next higher and lower foot count; fractions below the $\frac{1}{2}'$ shall be dropped and fractions above the $\frac{1}{2}'$ shall be counted as the next higher foot.

137. The average length of a shipment of lumber shall be computed by dividing the total length in feet by the total number of pieces in a shipment.

138. The average width of a shipment of lumber 1" or less in thickness, shall be computed by dividing the total board feet by the total length in feet and multiplying the result by 12. The total board foot tally of lumber thicker than 1" shall be divided first by the thickness as expressed in inches, and fractions of an inch.

MOISTURE CONTENT PROVISIONS

139. The moisture content for C or better kiln dried lumber of 1" and 1½" nominal thickness shall not exceed 12% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 15%; if air dried, the moisture content shall not exceed 16%.

140. The moisture content for C or better kiln dried lumber of 1½" and 2" nominal thickness shall not exceed 15%; if air dried, the moisture content shall not exceed 18%.

141. The moisture content for No. 1, No. 2, and No. 3 kiln dried lumber less than 2" nominal thickness shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

142. The moisture content for No. 1 and No. 2 kiln dried lumber of 2" nominal thickness shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

143. Specifications for kiln dried or air dried lumber, which do not state the maximum percentage of moisture content and which do not come within the moisture content provisions of standard grades, shall be construed as limiting the moisture content of nominal thickness of 2" and less to 15% if ordered kiln dried, and to 19% if ordered air dried; if in excess of 2" nominal thickness, such specifications shall be construed as limiting the moisture content to 20% if ordered kiln-dried, and to 23% if ordered air dried.

144. Purchasers desiring lumber of a specific moisture content may obtain it by ordering it special, but such a shipment shall be considered as a special contract.

145. In case of complaint on account of the dryness of any shipment of Southern Pine lumber, official Association inspection will be available upon request. Such inspections for dryness will be made in accordance with the maxima allowable under these rules; inspection service for special moisture content limitations shall be rendered only when written detailed

specifications accompany the request for such inspection.

146. In case the buyer wishes inspection as to moisture content, he shall notify the shipper within twenty-four hours after the lumber is unloaded. All lumber on which complaint is made as to moisture content must be fully protected from the weather; no inspection for moisture content will be made if, upon the arrival of the inspector, there is evidence that these provisions have not been strictly complied with.

147. If, as a result of an official Association inspection, it should be found that all or any portion of a shipment exceeds the maximum moisture content allowable herein, such portion shall be considered as not complying with the provisions of the grade under consideration.

INSPECTION AND SHIPPING

148. When lumber is bundled, each length shall be bundled separately, except as hereinafter specified.

149. Unless otherwise stated in the contract of purchase, yard lumber of nominal thickness, 2" and less, (except Lath) shall be double end-trimmed with a tolerance of not to exceed 3 inches in excess of the nominal length.

150. Lumber must be accepted on grade in the form in which it is shipped. Any subsequent change in manufacture, mill work, or kiln drying, will prohibit an inspection for the adjustment of claims, except with the consent of all parties interested.

151. In case of complaint involving tally, the entire shipment shall be held intact for re-tally.

152. In case of complaint on account of the grade or tally of any shipment of standard grade or standard size, official Association re-inspection is available upon request and at a reasonable charge.

153. Official Association inspection service is available for the inspection of grades not

described in Association rules only when written, detailed specifications accompany the request for such inspection.

154. Where buyers demand and will pay the cost thereof, a certificate made by an official inspector of this Association will be furnished with each shipment so arranged for, with the understanding that such inspection and certificate will be final.

155. Upon receipt of complaint from the purchaser, the seller should immediately request the Southern Pine Association to provide official re-inspection or re-tally, as the case may be, according to the rules in effect at the time of execution of contract; and the purchaser shall lend all reasonable assistance to facilitate the reinspection or re-tally.

156. In case of complaint regarding grade but not involving tally, the buyer is required to accept that portion of a shipment of lumber of standard grade or standard size which is up to grade or of standard size, as the case may be, holding intact that portion thereof, the grade or size of which is in dispute, for official Association inspection; the action on the part of the buyer in accepting and using such portion of the shipment shall not be construed as his acceptance of the entire shipment; further, the buyer shall pay in accordance with the terms of sale for that portion which he accepts, but an acceptance by the buyer of a part of a shipment does not prejudice his just claim on account of any unused lumber that is alleged by him to be below standard grade or not of standard size. The complainant buyer shall hold disputed lumber intact, properly protected, for not exceeding 30 days after date of the request for official inspection or reinspection and shall file complaint with seller within 10 days from receipt of shipment.

157. A shipment or an item of a shipment shall be considered as of the grade invoiced if, upon official Association re-inspection under the grading and inspection rules under which the lumber has been graded and sold, 95%

thereof or more is found to be of said grade, the portion below said grade to be accepted by the buyer as of its actual grade. Where the de-grades are in excess of 5% of the item, or shipment, or where the de-grades are found upon official re-inspection to be more than one grade lower than the grade invoiced, the de-grades shall be the property of the seller. These provisions shall not apply in the case of specially worked lumber.

158. The expense of such re-inspection shall be borne by the shipper if the item complained of is found to be more than 5% below grade; if 5% or less, the expense of such inspection shall be borne by the buyer; but in either case the person calling for the re-inspection shall be responsible to the Association for the cost thereof.

159. The official grading, inspection and marking of lumber is recognized in American Lumber Standards as the function of the regional associations of manufacturers which formulate and maintain rules and standards for their respective species. For economy and efficiency, lumber should be officially graded and marked. The un-official grading, re-grading and marking of lumber in process of distribution is confusing, facilitates deception, is not in the interest of public confidence, and has already been condemned by the industry.

160. So far as it is within its power, the Southern Pine Association has undertaken, through Association grades and inspection service, arbitration, grade-marking, and otherwise, to maintain for the benefit of the lumber-using public, the standards of size and grade as agreed upon in American Lumber Standards and as published in these grading and inspection rules. Further, the individual subscriber to this Association will maintain, and this Association assumes responsibility for the maintenance by them in the manner herein prescribed, of said size and inspection standards of the American Lumber Standards.

161. Lumber manufactured, graded, measured and described as herein provided, shall be

considered American Standard lumber. The purchase, sale, or shipment of lumber as American Standard is construed as involving agreement to submit to official Association inspection any complaint involving either sizes or grades.

USE CLASSIFICATIONS

162. Lumber is classified as (a) yard lumber, (b) structural lumber, and (c) factory and shop lumber.

The term 'yard lumber' as herein used means lumber that is manufactured and classified into those sizes, patterns and grades required for ordinary construction and general purpose uses. The grading of yard lumber is based on the intended use of the particular grade and is applied to each piece with reference to its size and length when graded, without consideration to further manufacture.

163. Structural lumber is 2 inches or over in thickness and four inches or over in width, and is intended for use where working stresses are required. The grading of structural lumber is based on the strength of the piece and the use of the entire piece. Structural lumber grades are easily identified by the use of the word "structural" in the grade names.

164. Factory and shop lumber is intended to be cut up for use in further manufacture. It is graded on the basis of the percentage of the area which will produce a limited number of cuttings of a specified, or a given minimum, size and quality.

GRADES OF YARD LUMBER

165. Yard lumber is divided into two main divisions: (a) Select and (b) Common. These are again divided into classes, Select lumber into (1) that suitable for natural finishes and (2) that suitable for paint finishes; Common lumber into (1) that which can be used without waste and (2) that which permits some waste. Each of these is further divided as hereinafter described.

FINISH

166. The grades of B and better Finish are based on a piece 8" wide by 12' long, or a piece having 8 square feet, nominal surface measure; on this basis, the grading of larger or smaller pieces shall be proportionate.

167. **Grades:** A, B, and C.

168. **Standard lengths** are 8' to 20', inclusive, and in shipments of standard lengths, 5% of 8-foot in "C" and better grades shall be permitted.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practicable, in all shipments of standard lengths.

169. **Sizes:** Southern Pine standard thicknesses and widths for Finish are as follows:

THICKNESS (INCHES)			WIDTH (INCHES)	
Nominal	Dressed (Yard)	Dressed (Industrial)	Nominal	Dressed
.....	5/16	.....	3	2 5/8
.....	7/16	.....	4	3 5/8
.....	9/16	.....	5	4 5/8
.....	11/16	.....	6	5 5/8
1	25/32	13/16	7	6 5/8
1 1/4	1-1/16	.....	8	7 1/2
1 1/2	1-5/16	.....	9	8 1/2
1 3/4	1-7/16	.....	10	9 1/2
2	1 5/8	1 3/4	11	10 1/2
2 1/2	2 1/8	.....	12	11 1/2
3	2 5/8	.....	over 12	off 1 1/8

(Note: The above widths for Finish are greater than the minimum widths provided in American Lumber Standards.)

170. **Crook** as shown in the following table, based on 16' lengths, shall be permitted in all grades of Finish, and proportionate amounts of crook shall be permitted in longer or shorter pieces.

WIDTHS	1' & 1 1/4" THICK	1 1/2" & 1 3/4" THICK	2" THICK
3"	3"	2"	1"
4"	2 1/2"	1 3/4"	3/4"
5" & 6"	2"	1 1/2"	11/16"
7" & 8"	1 3/4"	1 1/4"	5/8"
9" & 10"	1 1/4"	1"	9/16"
11" & 12"	1"	3/4"	1/2"

171. If both sides of Finish are desired "A", "B" or "C" grade, or free from all defects, special contract must be made. Defective dressing or slight skips shall be permitted on the reverse side of Finish.

172. The **moisture content** for C or better grades of kiln dried lumber of 1" and 1¼" nominal thickness shall not exceed 12% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 15%; if air dried, the moisture content shall not exceed 16%.

173. The **moisture content** for C or better grades of kiln dried lumber of 1½" and 2" nominal thickness shall not exceed 15%; if air dried, the moisture content shall not exceed 18%.

174. "A" **Finish** must show one face practically clear in widths of 12" and less and will admit two small imperfections or their equivalent in 13" and wider.

175. "B" **Finish**, in addition to admitting small surface checks, slight cup, and one short split in end, will admit two or a combination of two of the following or the equivalent: slight torn grain; three pin knots; two small knots; three very small pitch pockets; two small pitch pockets; two small pitch streaks; not to exceed 15% light stain; not to exceed 5% firm red heart. The reverse side of "B" Finish may not be lower than No. 1 grade for common strips and boards.

176. "C" **Finish** will admit the following or the equivalent: medium surface checks; through checks not to exceed 1/32" wide; slight cup; medium split; an average of six pin holes per surface foot; sound, firm and encased, tight, small knots; one such knot of medium size in 5" and 6" widths; two such knots of medium size in widths over 6"; defective dressing or skips that will not prevent its use as Finish; medium torn grain; light pitch; small pitch pockets; one medium pitch pocket in 5" and 6" widths; two medium pitch pockets in widths over 6"; medium pitch streaks; pith not over ½" wide by 6" long, or ¼" wide by 3" long;

25% firm red heart; slight shake not to exceed in length the width of the piece; light stain; 15% medium stain; wane $\frac{1}{4}$ " deep, $\frac{1}{3}$ the length of the piece and not to exceed either 1" wide or $\frac{1}{6}$ the width of the piece. Pieces grading as good as "B" Finish in all other respects will admit one of the following or the equivalent: one small pith knot; medium pitch; split not to exceed $\frac{1}{4}$ the length of the piece; firm red heart. The reverse side of "C" Finish may not be lower than No. 1 grade for common strips and boards, except it may contain decayed small knots. (Under previous issues of these rules, the shipment of a combined grade designated as No. 1 & C became common practice. The foregoing description of "C" Finish covers the quality heretofore designated as No. 1 & C, and orders for No. 1 & C shall be graded according to this rule.)

MOULDED CASING AND BASE, WINDOW AND DOOR JAMBS

177. **Moulded Casing and Base** shall be worked to sizes and patterns to conform to American Lumber Standards as shown in "Standard Wood Mouldings, 7000 Series," revised 1931. **Window and Door Jambs** will be dressed, rabbetted, and plowed as ordered.

178. **Grades:** A, B and C.

179. **Casing, Base and Jambs** shall be graded under the provisions for Finish of the same grades.

180. **Special Trim:** Standard lengths of "cut to length" trim shall be 1' to 7' 11" and shall be counted net lengths in breaks of 1"; the general practice now being to place this in three brackets, 4' and under; 4'1" to 6'; 6'1" to 7'11".

MOULDINGS

181. **Mouldings** shall be worked to sizes and patterns to conform to American Lumber Standards as shown in "Standard Wood Mouldings, 7000 Series," revised 1931.

182. **Standard Lengths** are 6' and longer, and in shipments of standard lengths, 5% of

6 and/or 7-foot shall be permitted, even though the number of feet of each length be specifically stated.

183. **Grade:** "B and Better."

184. **"B&Better" Moulding** shall be well manufactured and 1/3 of the pieces of any item may contain any one of the following or the equivalent: three pin holes; slight imperfections in dressing; one pin knot; one very small pitch pocket; pitch 1" wide by 6" long or the equivalent in pitch streaks.

FLOORING

General Provisions

185. Flooring may be worked Plain-End or End-Matched; orders which do not specifically provide for End-Matched Flooring shall be construed as applying to Plain-End.

186. The grades of Flooring are:

PLAIN-END		END-MATCHED	
Edge Grain	Flat Grain	Edge Grain	Flat Grain
A	A	A	A
B	B	B	B
C	C	C	C
D	D	D	D
	No. 2		
	No. 3		

187. The grades of B and better Flooring are based on a piece 4" wide by 12' long, or a piece having 4 square feet, nominal surface measure; on this basis, the grading of larger or smaller pieces shall be proportionate.

188. Flooring may be classified as to grain as Edge (Vertical or Rift) Grain and Flat (Slash) Grain; orders which do not specifically provide for Edge Grain Flooring shall be construed as applying to Flat Grain.

189. **Edge Grain Flooring** must have an average of at least six annual rings per inch across the face at every point in the length, and the rings (so-called grains) must form an angle of 45 degrees or more with the surface of the piece. When the angle becomes less than 45

degrees at any point, the Flooring may be classed as Flat (Slash) Grain or Near-Rift, as the case may be.

190. **Near Rift Flooring** shall consist of pieces that do not comply with the ring specifications for Edge Grain (Vertical Grain) Flooring; and in addition pieces that show only one edge of the grain on the face but forming an angle of less than 45 degrees with the surface, but such pieces must show an average of six or more rings to the inch anywhere across the face of the piece.

191. **Edge Grain Flooring and Near Rift Flooring** shall be graded under the same rule as Flat Grain, except as to the grain restrictions.

192. **Heart Face Flooring** (Flat or Edge-Grain) shall be free from sapwood on the face side.

193. **Dressed sizes:** The finished worked sizes in Flooring are:

THICKNESS (Inches)		WIDTH (Inches)		
Nominal	Worked	Nominal	Face	Over-All
.....	(a) 5/16	2	1½	1¾
.....	(a) 7/16	3	2½	2¾
.....	(a) 9/16	4	3½	3¾
1	25/32	.....	.....	.....
1¼	1-1/16	.....	.....	.....
1½	1-5/16	.....	.....	.....

(a) Over-all width does not apply. See Par. 118.

194. **Standard Workings:** The standard working of Flooring, 1", 1¼", and 1½" thick, 4" and under in width, shall be S2S, Standard Matched (SM) and scratched or hollowed back, with tongue and groove located 7/32" from bottom of piece; groove being 9/32" wide and 10/32" deep, the lower lip being recessed so that it is 1/32" inside of a line perpendicular to the face, the reverse side thus being 1/32" narrower than the face side; the tongue is 8/32" long, tapering from 9/32" thickness at the body of the piece to 2/32" less near end of tongue. (See cut on page 91.)

195. Pieces of Flooring with not less than 3/16" tongue will be admitted in any grade; pieces with not less than 1/16" tongue will be admitted in D and No. 2, except as provided in paragraph 197.

196. In C and better Flooring, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove or for 1/2 the thickness of the tongue for a length of 10", provided the maximum width and length decrease in proportion to the increase in depth.

197. In D and No. 2 Flooring, wane on the reverse side is admissible, provided it does not extend into the wood above the tongue or into the top lip of the groove; the wane may destroy the tongue and the lower lip of the groove for not to exceed 1/6 the length of the piece, provided such maximum wane is not longer than 8" in the first 16" of length at ends of any piece; and wane may extend across the reverse side, provided it does not occupy the full bearing surface for more than 16" of the length.

198. Medium knots in 3" flooring shall not exceed 1 1/4" diameter.

199. The moisture content for C or better kiln dried Flooring of 1" and 1 1/4" nominal thickness shall not exceed 12% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 15%; if air dried, the moisture content shall not exceed 16%.

200. The moisture content for C or better kiln dried Flooring of 1 1/2" nominal thickness shall not exceed 15%; if air dried, the moisture content shall not exceed 18%.

201. The moisture content for "D", No. 2 and No. 3 kiln dried Flooring shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

FLOORING (Plain-End)

202. **Standard lengths** are 4' to 20', inclusive, and the following percentages of short lengths may be included in all shipments in which the lengths are not specifically restricted.

{	A and B.....	5 %	8 and/or 9-foot
	C	5 %	6 and/or 7-foot
		5 %	8 and/or 9-foot
	D and No. 2.....	5 %	4 and/or 5-foot
		5 %	6 and/or 7-foot
		5 %	8 and/or 9-foot
	No. 3	Not to exceed 20 % 4 and 6-foot lengths	

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practicable, in all shipments of standard lengths.

203. **Crook** as shown below, based on 16' lengths, shall be permitted in C and better flooring, and proportionate amounts of crook shall be permitted in longer and shorter pieces.

3" nominal widths.....	3½" crook
4" nominal widths.....	3" crook

204. **"A" Flooring** must be practically clear on the face side and well manufactured.

205. **"B" Flooring**, in addition to admitting small surface checks, will admit two or a combination of two of any of the following or the equivalent: 4 pin holes; slight torn grain; 3 pin knots; 2 small knots; 3 very small pitch pockets; 2 small pitch pockets; 3 small pitch streaks; not to exceed 15% firm red heart; not to exceed 15% light stain.

206. **"C" Flooring** will admit the following or the equivalent: surface checks; an average of six pin holes per surface foot; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; medium knots; light pitch; 25% medium pitch; medium pitch pockets; pitch streaks; pith not over 6" long; medium shake; short split; firm red heart; light stain; 15% medium stain. (This grade has been

designated as No. 1 Common in previous issues of these rules. Orders for No. 1 Common Flooring shall be graded as "C" Flooring.)

207. **"D" Flooring** must be suitable for low cost flooring and will admit the following or the equivalent: checks; medium holes; deep torn grain; skips or other imperfections in dressing; sound, firm, pith or encased, tight, medium knots; heavy pitch; pitch pockets; pitch streaks; pith; medium shakes; medium splits; medium stain; wane not to exceed $\frac{1}{8}$ " deep or $\frac{1}{2}$ " wide; warp; firm red heart. Pieces having a face grade otherwise as good as "C" Flooring may have one waste area 2" long in 12' and shorter, and two such waste areas in 14' and longer, provided the usable pieces are 24" or longer after cutting. (This grade covers the quality known to the trade as No. 2 Droppings, and orders for No. 2 Droppings Flooring shall be graded according to this rule.)

208. **No. 1 Flooring** shall hereafter be designated and graded as "C" Flooring, paragraph 206.

209. **No. 2 Flooring** shall be graded the same as No. 2 strips, paragraph 293, except that imperfections permitted in No. 2 strips, which might prevent the use of the piece as a whole for low cost flooring, shall be admitted if causing a waste of not more than 10% of the length of any one piece, but in 12' and shorter the waste shall be in one cutting area, and in 14' and longer the waste shall not be in more than two cutting areas, provided the usable portions after cutting any length shall not be less than 24" long.

210. **No. 3 Flooring** will admit all pieces below the grade of No. 2 Flooring, which are suitable for use as low cost sheathing or lathing without wasting more than $\frac{1}{4}$ the length of any one piece.

FLOORING (End-Matched)

211. **Standard lengths of End-Matched Flooring** shall be 2' to 16', inclusive, nested in bundles 8' and longer in multiples of 1 foot. The nomi-

nal length of End-Matched Flooring shall be averaged to the nearest foot, except that 19" shall be the minimum length in A, B and C, and 12" shall be the minimum in D. (Example: The 7-foot lengths are above 6' 6" to and including 7' 6".)

212. The **standard bundle** of 1x3 and 1x4 End-Matched Flooring shall be in 1 or 2 tiers of 6 courses each.

213. **Crook** of 1", based on 10' lengths, shall be permitted in 1x3 and 1x4 End-Matched Flooring, and longer or shorter pieces may have proportionate amounts of crook.

214. **"A" End-Matched Flooring** shall be well manufactured and practically clear on the face side, but 20% of the pieces of a shipment may contain 5% light stain, one pin knot not to exceed $\frac{1}{4}$ " diameter, an occasional pin hole without discoloration.

215. **"B" End-Matched Flooring** will admit the following or the equivalent: small surface checks; 4 pin holes; slight torn grain; small knots; small pitch pockets; small pitch streaks; 5% firm red heart; 15% light stain.

216. **"C" End-Matched Flooring** will admit the following or the equivalent: surface checks; 12 pin holes; medium torn grain or other imperfections in dressing that will not cause waste; medium knots; light pitch; 25% medium pitch; medium pitch pockets; pitch streaks; pith not over 3" long; slight shake; firm red heart; light stain; 15% medium stain.

217. **"D" End-Matched Flooring** shall be graded under the same provisions as D Flooring (Plain-End), except waste is not permitted.

CEILING

General Provisions

218. **Ceiling** may be worked Plain-End or End-Matched; orders which do not specifically provide for End-Matched Ceiling shall be construed as applying to Plain-End.

219. The grades of Ceiling are:

PLAIN END	END-MATCHED
A	A
B	B
C	C
D	D
No. 2	
No. 3	

220. The grades of B and better Ceiling are based on a piece 4" wide by 12' long, or a piece having 4 square feet, nominal surface measure; on this basis, the grading of larger or smaller pieces shall be proportionate.

221. **Dressed sizes:** The finished worked sizes of Ceiling are:

THICKNESS (Inches)		WIDTH (Inches)		
Nominal	Worked	Nominal	Face	Over-all
.....	(a) 5/16	3	2 3/8	2 3/8
.....	(a) 7/16	4	3 1/4	3 1/2
.....	(a) 9/16	5	4 1/4	4 1/2
.....	11/16	6	5-3/16	5-7/16

(a) Over-all width does not apply. See Par. 118.

222. **Standard Workings:** The bead on all Ceiling and Partition shall be depressed 1/32" below the surface of piece. (See cuts on pages 91 to 93.)

223. Pieces of Ceiling with tongue not more than 1/16" scant of standard width will be admitted in any grade. Pieces of Ceiling having not less than 1/16" tongue or lap will be admitted in "D" and No. 2, except as provided in Par. 225.

224. In "C" and better ceiling, wane on the reverse side, equivalent to 1/3 the width and 1/6 the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove or for 1/2 the thickness of the tongue for a length of 10", provided the maximum width and length decrease in proportion to the increase in depth.

225. In D and No. 2 Ceiling, wane on the reverse side is admissible, provided it does not extend into the wood above the tongue or into

the top lip of the groove; the wane may destroy the tongue and the lower lip of the groove for not to exceed $\frac{1}{6}$ the length of the piece, provided such maximum wane is not longer than 8" in the first 16" of length at ends of any piece; and wane may extend across the reverse side, provided it does not occupy the full bearing surface for more than 16" of length.

226. The **moisture content** for C and better kiln dried Ceiling shall not exceed 12% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 15%; if air dried, the moisture content shall not exceed 16%.

227. The **moisture content** for "D", No. 2 and No. 3 kiln dried Ceiling shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

CEILING (Plain-End)

228. **Standard lengths** are 4' to 20' inclusive, and the following percentages of short lengths may be included in all shipments in which the lengths are not specifically restricted.

A and B.....	5 %	8 and/or 9-foot
C	5 %	6 and/or 7-foot
	5 %	8 and/or 9-foot
D and No. 2.....	5 %	4 and/or 5-foot
	5 %	6 and/or 7-foot
	5 %	8 and/or 9-foot
No. 3	Not to exceed 20 %	
	4 and 6-foot lengths.	

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practicable, in all shipments of standard lengths.

229. **Crook** as shown below, based on 16' lengths, shall be permitted in C and better Ceiling, and proportionate amounts of crook shall be permitted in longer or shorter pieces.

3" nominal widths.....	3½" crook
4" nominal widths.....	3" crook
6" nominal widths.....	2½" crook

230. **"A" Ceiling** must be practically clear on the face side and well manufactured.

231. **"B" Ceiling**, in addition to admitting small surface checks, will admit 2 or a combination of 2 of any of the following or the equivalent: 6 pin holes; slight torn grain; 3 pin knots; 2 small knots; 3 very small pitch pockets; 2 small pitch pockets; 2 small pitch streaks; not to exceed 15% firm red heart; not to exceed 15% light stain.

232. **"C" Ceiling** will admit the following or the equivalent: surface checks; an average of 6 pin holes per surface foot; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; medium knots; 25% medium pitch; medium pitch pockets; pitch streaks; pith not over 6" long; medium shake; short split; firm red heart; light stain; 15% medium stain. Pieces otherwise as good as **"B"** Ceiling may have one knot hole or equivalent that can be cut out by wasting not to exceed 2" of their length, provided both pieces are 32" or longer after such cutting. (This grade has been designated as No. 1 Common in previous issues of these rules. Orders for No. 1 Common Ceiling shall be graded as **"C"** Ceiling.)

233. **"D" Ceiling** must be suitable for low cost ceiling and will admit the following or the equivalent: checks; medium holes; deep torn grain; skips or other imperfections in dressing; sound, firm, pith or encased, tight, medium knots; heavy pitch; pitch pockets; pitch streaks; pith; medium shakes; medium splits; medium stain; wane not to exceed $\frac{1}{8}$ " deep or $\frac{1}{2}$ " wide; warp; firm red heart. Pieces having a face grade otherwise as good as **"C"** Ceiling may have one waste area 2" long in 12' and shorter, and two such waste areas in 14' and longer, provided the usable pieces are 24" or longer after cutting. (This grade covers the quality known to the trade as No. 2 Droppings, and orders for No. 2 Droppings Ceiling shall be graded according to this rule.)

234. **No. 1 Ceiling** shall hereafter be designated and graded as **"C"** Ceiling, paragraph 232.

235. **No. 2 Ceiling** shall be graded the same as No. 2 strips, paragraph 293, except that im-

perfections permitted in No. 2 strips, which might prevent the use of the piece as a whole for low cost ceiling, shall be admitted if causing a waste of not more than 10% of the length of any one piece, but in 12' and shorter the waste shall be in one cutting area, and in 14' and longer the waste shall not be in more than two cutting areas, provided the usable portions after cutting any length shall not be less than 24" long.

236. **No. 3 Ceiling** will admit all pieces that cannot be used as No. 2 Ceiling, but are suitable for use as low cost sheathing or crating without a waste or more than $\frac{1}{4}$ the length of any one piece.

CEILING (End-Matched)

237. **Standard lengths** of End-Matched Ceiling shall be 2' to 16', inclusive, nested in bundles 8' and longer in multiples of one foot. The nominal lengths in End-Matched Ceiling shall be averaged to the nearest foot, except that 19" shall be the minimum length in A, B and C, and 12" shall be the minimum length in D. (Example: The 7-foot lengths are above 6'6", to and including 7'6".)

238. The **standard bundle** of End-Matched Ceiling shall be in 1 or 2 tiers of 6 courses each.

239. **Crook** of 1", based on 10' lengths, shall be permitted in End-Matched Ceiling, and longer or shorter pieces may have proportionate amounts of crook.

240. **"A" End-Matched Ceiling** shall be well manufactured and practically clear on the face side, but 20% of the pieces of a shipment may contain 5% light stain, one pin knot not to exceed $\frac{1}{4}$ " diameter, an occasional pin hole without discoloration.

241. **"B" End-Matched Ceiling** will admit the following or the equivalent: small surface checks; 6 pin holes; slight torn grain; small knots; small pitch pockets; small pitch streaks; 15% firm red heart; 15% light stain.

242. **"C" End-Matched Ceiling** will admit the following or the equivalent: surface checks;

12 pin holes; heavy torn grain or other imperfections in dressing that will not cause waste; medium knots; light pitch; 25% medium pitch; medium pitch pockets; pitch streaks; pith not over 3" long; slight shake; firm red heart; light stain; 15% medium stain.

243. **"D" End-Matched Ceiling** shall be graded under the same provisions as "D" Ceiling (Plain-End), except waste is not permitted.

PARTITION (Plain-End)

244. **Grades:** A, B, C, D, No. 2 and No. 3.

245. **Standard lengths** and percentages of short lengths shall be the same as in Ceiling.

246. **Dressed Sizes:** The finished worked sizes of Partition are:

THICKNESS (Inches)		WIDTHS (Inches)		
Nominal	Worked	Nominal	Face	Over-all
.....	$\frac{3}{4}$ "	3	$2\frac{5}{8}$	$2\frac{5}{8}$
.....	.....	4	$3\frac{1}{4}$	$3\frac{1}{2}$
.....	.....	5	$4\frac{1}{4}$	$4\frac{1}{2}$
.....	.....	6	$5-3/16$	$5-7/16$

247. **Partition** shall be graded on Ceiling rules and must meet the grade requirements on face side only, but the reverse side shall not be more than one grade lower and shall not cause waste in C and better grades. The moisture content provisions for Ceiling shall apply to Partition.

PARTITION (End-Matched)

248. **End-Matched Partition** is graded the same as End-Matched Ceiling, having the same grade names, the same standard lengths, the same bundling, the same crook provisions and the same descriptions for grades, including moisture content provisions.

DROP SIDING

General Provisions

249. **Drop Siding** may be worked Plain-End or End-Matched; orders which do not specifically provide for End-Matched Drop Siding shall be construed as applying to Plain-End.

250. The grades of Drop Siding are:

PLAIN END	END-MATCHED
A	A
B	B
C	C
D	D
No. 2	
No. 3	

251. The grades of B and better Drop Siding are based on a piece 6" wide by 12' long, or a piece having 6 square feet, nominal surface measure; on this basis, the grading of larger or smaller pieces shall be proportionate.

252. **Dressed Sizes:** The finished worked sizes in Drop Siding are:

	THICKNESS (Inches)		WIDTH (Inches)		
	Nominal	Worked	Nominal	Face	Over-all
Rustic and Drop Siding (D & M.)		9/16	4	3 1/4	3 1/2
		3/4	5	4 1/4	4 1/2
			6	5-3/16	5-7/16
			8	7 1/8	7 3/8
Rustic and Drop Siding— (Shiplapped).		9/16	4	3 1/8	3 1/2
		3/4	5	4 1/8	4 1/2
			6	5-1/16	5-7/16
			8	6 7/8	7 3/8
			10	8 7/8	9 3/8

253. The patterns of Drop Siding shown on pages 94 to 103 are based on 6" nominal width; for each 2" increase in nominal width, increase by 1/4" the following: the 1 1/4" workings on patterns No. 103, No. 104, No. 107, No. 108, No. 111 and No. 112; the 1 1/2" workings on patterns No. 102, No. 104, No. 106, No. 108, No. 110 and No. 112; and the 1 5/8" workings on patterns No. 101, No. 103, No. 105, No. 107, No. 109 and No. 111. In other respects the workings shall not be changed.

254. **Standard Workings:** Drop Siding may be worked either D&M or Shiplapped. (See cuts on pages 94 to 103.) Other patterns are special.

255. Pieces of Drop Siding with not less than 3/16" tongue, or 5/16" lap, will be admitted in any grade; pieces with not less than 1/16"

tongue, or $\frac{1}{8}$ " lap, will be admitted in "D" and No. 2, except as provided in paragraph 257.

256. In "C" and better Drop Siding, wane on the reverse side, equivalent to $\frac{1}{3}$ the width and $\frac{1}{6}$ the length of the piece, is admissible, provided the wane does not extend into the tongue or groove; it may, however, extend into the groove, or for $\frac{1}{2}$ the thickness of the tongue for a length of 10", provided the maximum width and length decrease in proportion to the increase in depth.

257. In "D" and No. 2 Drop Siding, wane on the reverse side is admissible, provided it does not extend into the wood above the tongue or into the top lip of the groove; the wane may destroy the tongue and the lower lip of the groove for not to exceed $\frac{1}{6}$ the length of piece, provided such maximum wane is not longer than 8" in the first 16" of length at ends of any piece; and wane may extend across the reverse side, provided it does not occupy the full bearing surface for more than 16" of length.

258. The **moisture content** for "C" and better kiln dried Drop Siding shall not exceed 12% in 90% of a shipment or an item of a shipment, and the remainder shall not exceed 15%; if air dried, moisture content shall not exceed 16%.

259. The **moisture content** for "D", No. 2 and No. 3 kiln dried Drop Siding shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

DROP SIDING (Plain-End)

260. **Standard lengths** are 4' to 20', inclusive, and the following percentages of short lengths may be included in all shipments in which the lengths are not specifically restricted.

A and B.....	5%	8 and/or 9-foot
C	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
D and No. 2.....	5%	4 and/or 5-foot
	5%	6 and/or 7-foot
	5%	8 and/or 9-foot
No. 3, not to exceed	20%	4 and 6-foot.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practicable, in all shipments of standard lengths.

261. **Crook** as shown below, based on 16' lengths, shall be permitted in C and better Drop Siding, and proportionate amounts of crook shall be permitted in longer or shorter pieces.

4" nominal widths.....	3" crook
6" nominal widths.....	2½" crook

262. **"A" Drop Siding** must be practically clear on the face side and well manufactured.

263. **"B" Drop Siding**, in addition to admitting light stain and medium surface checks, will admit two or a combination of two of any of the following or the equivalent: 6 pin holes; medium torn grain; 3 pin knots; 2 small knots; 2 very small pitch pockets; 1 small pitch pocket; 1 small pitch streak; not to exceed 15% firm red heart; not to exceed 15% medium stain.

264. **"C" Drop Siding** will admit the following or the equivalent: 1 medium pitch pocket or 1 medium pitch streak; surface checks; pin holes; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; sound knots, the size of any one knot not to exceed 1/3 the nominal width; pith not over 6" long; slight shake; short split; firm red heart; light stain; 15% medium stain; light pitch. Pieces otherwise as good as "B" Drop Siding may have one knot hole or equivalent that can be cut out by wasting not to exceed 2" of their length, provided both pieces are 32" or longer after such cutting. (This grade has been designated as No. 1 Common in previous issues of these rules. Orders for No. 1 Common Drop Siding shall be graded as "C" Drop Siding.)

265. **"D" Drop Siding** must be suitable for low cost siding and will admit the following or the equivalent: checks; medium holes; deep torn grain; skips or other imperfections in dressing; sound, firm, pith or encased, tight knots,

the size of any one knot not to exceed $1/3$ nominal width; heavy pitch; pitch pockets; pitch streaks; pith; medium shakes; medium splits; medium stain; wane not to exceed $3/16$ " deep or $3/4$ " wide; warp; firm red heart. Pieces having a face grade otherwise as good as "C" Siding may have one waste area 2" long in 12' and shorter, and two such waste areas in 14' and longer, provided the usable pieces are 24" or longer after cutting. (This grade covers the quality known to the trade as No. 2 Droppings, and orders for No. 2 Droppings Drop Siding shall be graded according to this rule.)

266. **No. 1 Drop Siding** shall hereafter be designated and graded as "C" Drop Siding, paragraph 264.

267. **No. 2 Drop Siding** shall be graded the same as No. 2 strips, paragraph 293, except that imperfections permitted in No. 2 strips, which might prevent the use of the piece as a whole for low cost siding, shall be admitted if causing a waste of not more than 10% of the length of any one piece, but in 12' and shorter, the waste shall be in one cutting area, and in 14' and longer, the waste shall not be in more than two cutting areas, provided the usable portions after cutting any length shall not be less than 24" long.

268. **No. 3 Drop Siding** will admit pieces that cannot be used as No. 2 Drop Siding, but are suitable for use as low cost sheathing or lathing, without a waste of more than $1/4$ the length of any one piece.

DROP SIDING (End-Matched)

269. **Standard lengths of End-matched Drop Siding** shall be 2' to 16' inclusive, nested in bundles 8' long and upward in multiples of one foot. The nominal length in End-Matched Drop Siding shall be averaged to the nearest foot, except that 19" shall be the minimum length in A, B and C, and 12" shall be the minimum in D. (Example: 7-foot lengths are above 6'6" to and including 7'6".)

270. The **standard bundle** of 1x6 End-Matched Drop Siding shall be in 1 or 2 tiers of 6 courses each.

271. **Crook of 1"**, based on 10' lengths, shall be permitted in End-Matched Drop Siding, and longer or shorter pieces may have proportionate amounts of crook.

272. The standard end-matched tongue and groove for End-Matched Drop Siding shall be as follows: Tongue, $5/32$ " thick and $7/32$ " wide; groove, $11/64$ " wide and $1/4$ " deep, tongue and groove to be located $1/8$ " from bottom of piece.

273. **"A" End-Matched Drop Siding** shall be well manufactured and practically clear on the face side, but 20% of the pieces of a shipment may contain 5% light stain, pin knots, occasional pin holes or slight torn grain.

274. **"B" End-Matched Drop Siding** will admit the following or the equivalent: medium surface checks; 6 pin holes; medium torn grain; small knots; small pitch pockets; small pitch streaks; 15% firm red heart; light stain; 15% medium stain.

275. **"C" End-Matched Drop Siding** will admit the following or the equivalent: pitch pockets; pitch streaks; surface checks; pin holes; loosened or heavy torn grain or other imperfections in dressing that will lay without waste; sound knots, the size of any one knot not to exceed $1/3$ the nominal width; pith not over 6" long; slight shakes; firm red heart; light stain; 15% medium stain; light pitch.

276. **"D" End-Matched Drop Siding** shall be graded under the same provisions as "D" Drop Siding (Plain-End), except waste is not permitted.

BEVEL SIDING

277. **Grades:** A, B, C, D, No. 2 and No. 3.

278. **Standard lengths** and percentages of short lengths shall be the same as in Drop Siding.

279. **Dressed sizes:** The finished worked sizes of Bevel Siding are:

THICKNESS (Inches)		WIDTH (Inches)		
Nominal	Worked	Nominal	Face	Over-all
.....	7/16 x 3/16	4	3½	3½
.....	10/16 x 3/16	5	4½	4½
.....	.....	6	5½	5½

280. **Bevel Siding** shall be graded according to Drop Siding rules, including moisture content provisions, and, in addition, will admit slight imperfections on the thin edge, which will be covered by the lap when laid 2½", 3½" or 4½" to the weather.

COMMON STRIPS AND BOARDS

281. The grades and workings of common strips and boards are:

GRADES		WORKINGS
→	No. 1 }	{ Rough-Surfaced Shiplap D&M (Usually S2S&CM) Beaded or V'd as ordered
	No. 2 }	
	No. 3 }	
	No. 4 }	

282. **Standard lengths** are 4' to 20', inclusive, and the following percentage of short lengths may be included in all shipments in which the lengths are not specifically restricted.

No. 1	.....	5%	8-foot
No. 2	.....	5%	4-foot
		5%	6-foot
		5%	8-foot
No. 3 & No. 4—8" and wider	.....	5%	4-foot
		5%	6-foot
		5%	8-foot

3" to 6" widths No. 3 and No. 4 may be 25% under 10-foot.

The above percentages of short lengths are customary, and in the interest of conservation will be included, so far as practicable, in all shipments of standard lengths, except as hereinafter specified.

283. **Crook** as shown below, based on 16' lengths, shall be permitted in strips and boards, and proportionate amounts of crook shall be permitted in longer or shorter pieces:

WIDTHS	No. 1	No. 2
2" and 3"	3¼"	3½"
4"	2¾"	3"
5" and 6"	2½"	2½"
7" and 8"	2"	2¼"
9" and 10"	1¾"	2"
11" and 12"	1½"	1¾"

284. Strips and boards which are ordered S1S or S2S, may be dressed on one edge to a width ⅛" scant of the nominal width.

285. The stock widths of No. 1 and No. 2 strips and boards, rough, S1S or S2S, shall not be counted as standard width if more than ¼" scant in width in 7" and under, ⅜" scant in 8" to 12", and ½" scant in wider widths; pieces narrower than above should be measured as the next lower standard width and not reduced in grade.

286. Pieces of D&M with not less than 3/16" tongue, and Shiplap with not less than 5/16" lap will be admitted in No. 1; pieces having not less than 1/16" tongue, or not less than ⅛" lap, will be admitted in No. 2; and pieces with not less than 1/16" lap will be admitted in No. 3.

287. **Dressed Sizes:** The finished sizes of common strips and boards when S4S are:

THICKNESS (Inches)			WIDTH (Inches)	
Nominal	Standard Yard	Standard Industrial	Nominal	Face
1	25/32	13/16	2	1⅝
1¼	1-1/16	.....	3	2⅝
1½	1-5/16	.....	4	3⅝
.....	.....	.....	5	4⅝
.....	.....	.....	6	5⅝
.....	.....	.....	7	6⅝
.....	.....	.....	8	7½
.....	.....	.....	9	8½
.....	.....	.....	10	9½
.....	.....	.....	11	10½
.....	.....	.....	12	11½
.....	.....	.....	over 12	off ⅝

288. **Dressed Sizes:** The finished sizes of common strips and boards worked to pattern are:

	THICKNESS (Inches)		WIDTH (Inches)		
	Nominal	Dressed	Nominal	Face	Over-all
Shiplap	1	25/32	4	3 1/8	3 1/2
	.....	.....	6	5 1/8	5 1/2
	.....	.....	8	7 1/8	7 1/2
	.....	.....	10	9 1/8	9 1/2
	.....	.....	12	11 1/8	11 1/2
D & M	1	25/32	4	3 1/4	3 1/2
	1 1/4	1-1/16	6	5 1/4	5 1/2
	1 1/2	1-5/16	8	7 1/4	7 1/2
	.....	.....	10	9 1/4	9 1/2
	.....	.....	12	11 1/4	11 1/2

289. D&M, Shiplap and Barn Siding shall be worked to the patterns shown in cuts on pages 103 and 105.

290. The **moisture content** for No. 1, No. 2 and No. 3 kiln dried strips and boards shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

291. The provisions for common strips and boards worked to pattern shall apply when required to be End-Matched, except standard lengths shall be 2' to 16', inclusive, nested in bundles 4' and upward in 1 foot multiples. The nominal length shall be averaged to the nearest foot, except that 19" shall be the minimum length. Example: (7-foot lengths are above 6'6" to and including 7'6").

292. **No. 1** strips and boards, rough, dressed and worked to pattern, must be suitable for use without waste, and will admit the following or the equivalent: sound, firm, pith and encased knots, the size of any one knot not to exceed 1" in 2" widths, 1 1/2" in 3", 4" and 5" widths, 2" in 6" and 8" widths, 2 1/2" in 10" widths, 3" in 12" widths, and 3 1/2" in wider widths; medium cup; checks; a limited number of pin holes well scattered; loosened or heavy torn grain or other imperfections in dressing; pitch pockets; heavy pitch; pith; medium shake; medium splits; firm red heart; light stain; 15%

medium stain; wane $\frac{1}{2}$ " deep, $\frac{1}{3}$ the length of the piece, and not to exceed either $1\frac{1}{2}$ " wide or $\frac{1}{4}$ the width of the piece, except that wane shall not be so deep as to extend into the tongue or for $\frac{1}{2}$ the thickness of the top lip on the groove in D&M, or for over $\frac{1}{2}$ the thickness of the lap in shiplap.

293. No. 2 strips and boards, rough, dressed and worked to pattern will admit the following or the equivalent: knots not necessarily sound, the size of any one knot not to exceed $1\frac{1}{4}$ " in 2" widths, $1\frac{1}{2}$ " in 3" widths, $2\frac{1}{2}$ " in 4" widths, 3" in 6" widths, $3\frac{1}{2}$ " in 8" widths, 4" in 10" widths, $4\frac{1}{2}$ " in 12" widths and 5" in wider widths; deep cup; medium holes; one 1" knot hole in 4" and wider; deep torn grain or other imperfections in dressing that will not cause waste; pitch pockets; pitch; pith; firm red heart; through shakes or splits not to exceed $\frac{1}{4}$ the length of the piece; streaks of advanced decay not to exceed $\frac{1}{2}$ " wide by $\frac{1}{4}$ the length of the piece, or its equivalent in unsound red heart; medium stain; wane 2" wide by $\frac{1}{2}$ the length of the piece.

294. No. 3 strips and boards, rough, dressed and worked to pattern must be suitable for use as a whole for low cost sheathing and will admit the following or the equivalent: large knots; loose knots; decayed knots; knot holes which do not exceed $\frac{1}{4}$ the nominal width; splits; through checks; through shakes; mismanufacture; pitch pockets; pitch; red heart; stain; wane.

295. No. 4 strips and boards will admit all pieces that fall below the grade of No. 3, excluding such pieces that will not hold in place by nailing after wasting $\frac{1}{4}$ the length of the piece by cutting into 2 or 3 pieces; mill inspection to be final.

296. *The grades listed and described below while not referred to in American Lumber Standards, are maintained by this Association in seeking a conservation of the products and trade peculiar to this industry: (Paragraphs 297 to 305, inclusive).*

297. **Grades:** No. 1 Box and No. 2 Box.

298. **Standard lengths** are 8' to 16', not exceeding 5% 8'.

299. **Widths** are 3" and over, and may be specified either as standard widths or as edge widths; where edge widths are specified, measurement shall be according to paragraph 136.

300. **No. 1 Box** shall consist of lumber below the grade of No. 1 common, containing pin worm holes; reasonably sound knots which do not seriously affect strength of pieces; stain not exceeding 25%. Stained pieces otherwise B and Better which show not over 50% stain; stained pieces otherwise grading No. 1 common and showing not more than 33 1/3% stain; and pitchy pieces which are not allowed in C and better lumber but will otherwise grade C and better; and No. 1 common containing 50% firm red heart will be admitted in this grade.

301. **No. 2 Box:** This grade shall consist of boards below the grade of No. 1 Box (excepting Bark strips) and which can be used with a waste not exceeding 25%. This grade will admit red heart, but pieces 7" and wider shall cross-cut sound in the widths for which they are shipped within the above limit of waste.

302. **Dunnage:** This grade shall consist of all lumber below the grade of No. 2 Box.

303. **B&Better Bark Strips** shall consist of lumber containing wane; may be inspected from either side; and within the limitations described, wane shall not be restricted, viz: shall show on edges at least 1/2" free of wane from end to end of piece, except that 10% of an item or shipment may show on edges less than 1/2" free of wane provided both sides are 75% free of wane. In all other respects this grade shall be equal to B&Btr. Finish.

304. **Bark Strip Partition** shall be worked from B&Better Bark Strips as described in paragraph 303; shall show on edges at least 7/16" free of wane from end to end of piece, except that 10% of an item or shipment may show on

edges less than $7/16$ " free of wane, provided both sides are 75% free of wane.

305. **Box Bark Strips** shall consist of all bark strips below B&Better Bark strips; when re-sawn the mill inspection and tally are final.

SHOP GRADES

306. **No. 1 Shop**, $4/4$ " to $8/4$ " thick, shall consist of lumber 4" and wider, 6' and longer, averaging 8" wide, not less than 60% of each piece to cut or rip, or both, B&Btr. pieces at least 3×4 ' or 6×3 ', to be graded from poor face.

307. **No. 2 Shop** $4/4$ " to $8/4$ " thick, shall be the same as No. 1 Shop except that the average width shall be 7", and the percentage of cuttings and rippings shall be 40% or better.

308. The moisture content for No. 1 and No. 2 Shop, $4/4$ " and $5/4$ " nominal thicknesses shall not exceed 12% in 90% of the pieces of a shipment or an item of a shipment, and the remainder shall not exceed 15%; for $6/4$ " and $8/4$ " nominal thicknesses, the moisture content shall not exceed 15%.

309. Where pieces are ordered in exact lengths, measurement shall be on 6" breaks at the next break above.

SOUTHERN PINE LATH

310. **No. 1 Lath** when green, should measure 2" thick to every 5 lath with the minimum thickness of any one lath not less than $5/16$ " and should not be less than $1-7/16$ " wide. When dry they should measure $1\frac{5}{8}$ " thick to every 5 lath, and should not be less than $1-5/16$ " wide. Length 4', with not more than 20% of a shipment which may be as much as $\frac{1}{2}$ " short.

311. **No. 1 Lath** will admit wane $\frac{1}{8}$ " deep, $\frac{1}{4}$ " wide on the face, and 6" long; pin holes; 1 pin knot. Stain shall not be limited.

312. Lath 1" wide and 48" long may be furnished, when ordered, on the above specifications. Lath 32" long may be furnished, when ordered, on the above specifications.

313. **No. 2 Lath** shall consist of pieces that fall below the grade of No. 1 which are not less than $1\frac{1}{4}$ " wide, $\frac{1}{4}$ " thick, when dry, and are not more than $\frac{3}{4}$ " short. They will admit wane, worm holes, knots, and other imperfections that will not prevent their use without waste.

BYRKIT LATH

314. Sizes: $\frac{3}{4}$ "x $3\frac{1}{2}$ " and $5\frac{1}{4}$ "; lengths, 4' and up. (See cuts on page 104.)

315. Standard Byrkit lath shall consist of lumber that will be held firmly in place and support plaster by ordinary nailing by not wasting more than 10% of any piece and that will present a full surface with no openings over $\frac{1}{2}$ " wide and 3" long. The ends of pieces of Byrkit Lath are not expected to meet on stud-ding, and only such quantity shall be counted waste as is necessary to remove a defect.

PICKETS

316. Square Pickets, from $1\frac{1}{2}$ " lumber shall be worked to $1-5/16$ "x $1-5/16$ ", 3' and 4' long, dressed on 4 sides and pointed. $1\frac{1}{4}$ " lumber shall be worked to $1-1/16$ "x $1-1/16$ ", 3' and 4' long, dressed on 4 sides and pointed.

317. Flat Pickets from 1"x3" lumber shall be worked to $\frac{3}{4}$ "x $2\frac{1}{4}$ ", 3' and 4' long, dressed on 4 sides and headed.

SOUTHERN PINE SHINGLES

318. Size: All shingles shall be not less than $7/16$ " thick at butt, when dry, tapered to $1/16$ " at thin end, 4" wide, and 18" long, except as to variations hereinafter specified.

319. Select Grade shall be all heart, practically clear, and well manufactured, allowing a variation of $\frac{1}{2}$ " in length and $\frac{1}{4}$ " in width.

320. No. 1 Grade shall be all heart, free from unsound knots, but will admit sound tight knots, not exceeding 2" in diameter, if not located within 6" of butt end; slight pitch streaks; clipped ends in not to exceed 10% of the shin-

gles and a variation of $\frac{1}{2}$ " in length and $\frac{1}{4}$ " in width.

321. Prime Grade may be all sapwood, practically clear and well manufactured, allowing a variation of $\frac{1}{2}$ " in length and $\frac{1}{4}$ " in width. Stain shall not be limited.

322. No. 2 Grade may be all sapwood, and will admit sound tight knots, not exceeding 2" in diameter, if not located within 6" of butt end; firm red heart; stain; pitch; pitch pockets that do not show through; wane not exceeding $\frac{1}{2}$ " wide, that does not extend within 6" of butt end; a variation not exceeding 1" in length and $\frac{1}{2}$ " in width; clipped ends in not to exceed 20% of the shingles; and slight imperfections in manufacture.

Note: The count of shingles is based on 4,000 lineal inches in width to 1,000 shingles.

SPECIFICATIONS

FOR

Longleaf Yellow Pine

**Dimension and Small Timbers
Utility Timbers and Heavy Joists
Factory Flooring, Decking
And Heavy Shiplap
Structural Lumber**

Definition of Longleaf

323. **Longleaf** (*Pinus Palustris*) lumber as described in these rules shall be manufactured from original growth Longleaf Yellow Pine trees, and shall show not less than six (6) annual rings per inch, and shall contain not less than $1/3$ summerwood (measured according to the Density Rule as shown in Paragraph 403.) The contrast in color between summerwood and springwood shall be distinct, and the summerwood shall be dark in color, except in pieces having considerably above the minimum requirement for summerwood. Summerwood is the measure of strength. (Buyers may have assurance of receiving Longleaf by requiring that evidence of Longleaf shall be furnished by the manufacturer by branding under official Southern Pine Association supervision the name "Longleaf" in conjunction with the official Association grade-mark on each piece, or by requiring certificate inspection by an official Association inspector. Each subscriber to the Association has entered into a written agreement with the Association which guarantees the shipment of Longleaf in accordance with this definition when grade-marked "Longleaf". Prior to inspection by an official Association inspector, non-subscriber mills shall have certified to the Association regarding the species of the lumber to be inspected. In all cases, the official inspector shall make such personal study and investigation as may be necessary to identify the species.)

LONGLEAF DIMENSION

324. **Grades;** No. 1 Longleaf, No. 2 Longleaf, and No. 3 Longleaf. (No. 1 Longleaf has a working stress rating of 1400F. For working stress grade in No. 2 Longleaf, see paragraph 333.)

325. **Rough Sizes:** 2" thick; 3", 4", 6", 8", 10" and 12" wide. (See paragraphs 121, 122, 124 and 125.)

326. **Dressed Sizes:** 1 $\frac{5}{8}$ " thick; 2 $\frac{5}{8}$ ", 3 $\frac{5}{8}$ ", 5 $\frac{5}{8}$ ", 7 $\frac{1}{2}$ ", 9 $\frac{1}{2}$ " and 11 $\frac{1}{2}$ " wide. The dressed thickness for Standard Industrial Dimension is 1 $\frac{3}{4}$ ".

327. **Standard Lengths** are 4' to 24', inclusive, in multiples of 2', except that 9' shall be standard in 2x4, 2x6 and 2x8.

328. **Short lengths** under 9' shall not be permitted in standard shipments of No. 1 and No. 2, except by special agreement; 20% of mixed 6' and 8' lengths shall be permitted in No. 3.

329. **Crook** as shown in the following table, based on 16' lengths, shall be permitted in 2" Dimension, and proportionate amounts of crook shall be permitted in longer or shorter pieces.

SIZE	NO. 1 LONGLEAF	NO. 2 LONGLEAF
2 x 3"	13/16"	1-1/16"
2 x 4"	3/4"	1"
2 x 6"	11/16"	15/16"
2 x 8"	5/8"	7/8"
2 x 10"	9/16"	13/16"
2 x 12"	1/2"	3/4"

330. The moisture content for No. 1 Longleaf and No. 2 Longleaf dimension, kiln dried, shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

331. **No. 1 Longleaf** dimension must be suitable for use as substantial framing lumber without waste and will admit the following or the equivalent: sound, firm, encased and pith knots, which in nominal rough piece do not occupy more than $\frac{1}{4}$ the cross section if located at the edge of the wide face, or $\frac{1}{3}$ the cross section if located away from the edge, provided the sum of

the sizes of all knots within the middle half of length of any face shall not exceed $4\frac{1}{2}$ times the size of the largest knot allowed; surface or through checks; a limited number of medium holes well scattered; loosened or torn grain or imperfections in dressing; pitch pockets; pitch; pith; short splits; medium shakes; firm red heart; medium stain; slope of grain not to exceed 1" in 10" of length; wane $\frac{1}{4}$ the thickness, $\frac{1}{4}$ the width and $\frac{1}{4}$ the length of the piece. (No. 1 Longleaf has a working stress rating of 1400F.)

332. **No. 2 Longleaf** dimension must be suitable for use without waste, and will admit the following or the equivalent: sound, firm, encased and pith knots which do not occupy more than one-half the cross-section of the nominal rough piece at any point; loose, hollow or decayed knots, and knot holes one-half the maximum size knots permitted; through checks; deep torn grain or imperfections in dressing; through pitch pockets; pitch; pith; through shakes; medium splits; 1" streaks of decay not to exceed $\frac{1}{4}$ the length of the piece; red heart; medium stain; wane not to exceed $\frac{1}{3}$ the wide face and each piece to have a $\frac{1}{2}$ " nailing edge at every part of length of narrow face. Dimension with variation in sawing or equivalent mismanufacture which is not more than $\frac{1}{8}$ " scant of standard dressed thickness or width, shall be admitted in No. 2, provided such pieces are in all other respects as good as No. 1 Longleaf dimension for the length of such variation.

333. **NOTE:** The foregoing No. 2 Longleaf dimension may be graded to provide a working stress quality as **No. 2 Longleaf—1050F**, and when so specified, the additional limitations shall be as follows: sound, firm, encased and pith knots, if located at the edge of wide face, shall not occupy more than $\frac{1}{3}$ the cross-section; the sum of the sizes of all knots within the middle half of the length of any face shall not exceed $4\frac{1}{2}$ times the size of the largest knot allowed; and slope of grain shall not exceed 1" in 8" of length.

334. **No. 3 Longleaf** dimension will include all pieces below the grade of No. 2 Longleaf

which are suitable for use as low cost building material without wasting more than 25% of each piece of 1/3 of the number of pieces in any item of a shipment, but the usable portion must not be more than 1/2" scant of standard finished width nor more than 3/8" scant of standard finished thickness.

LONGLEAF SMALL TIMBERS

335. **Grades:** Square Edge & Sound Longleaf, No. 1 Longleaf, and No. 2 Longleaf.

336. **Sizes:** 3"x3" to 4"x6", inclusive.

337. **Standard Rough Sizes** shall not be scant in nominal thickness or width more than 1/4".

338. **Dressed Sizes:** S1S1E or S4S, shall be 3/8" less than nominal sizes.

339. **Standard lengths** are 10' to 24', inclusive, in multiples of 2'.

340. **Crook** shall be permitted in Square Edge & Sound Longleaf and in No. 1 Longleaf small timbers as permitted in the corresponding widths of No. 1 Longleaf dimension. (Par. 329.)

341. **Square Edge & Sound Longleaf** small timbers shall be well manufactured and shall be free from the following: through shakes; injurious ring shakes that extend to the surface; unsound and loose knots, and knots in groups that will materially impair the strength. Seasoning checks and sap stain shall not be limited, and wane not to exceed 1/8 of the width of a face and 1/4 of the length of the piece on one corner, or the equivalent on two or more corners on not to exceed 10% of the pieces shall be admitted.

342. **No. 1 Longleaf** small timbers must be suitable for use as substantial framing lumber, and will admit the following or the equivalent: sound, encased and pith knots, which in the nominal rough piece do not occupy more than 1/3 the cross-section; smaller defective knots which do not weaken the piece more than the knots aforesaid; surface or through checks; a limited number of medium holes, well scattered; loosened or torn grain, or other mismanufacture which will not cause waste; pitch pockets; pitch;

pith; short splits in ends; shakes that do not go through; firm red heart; stain; wane $\frac{1}{4}$ the thickness, $\frac{1}{4}$ the width, and $\frac{1}{4}$ the length of the piece.

343. **No. 2 Longleaf** small timbers will admit the following or the equivalent: knots of any size and quality; through checks; holes; through pitch pockets; pitch; pith; through shakes; mismanufacture such as deep torn grain, skips of any kind, failure to dress on any side, miscut lumber not more than $\frac{3}{8}$ " scant of nominal thickness and $\frac{1}{2}$ " scant of nominal width; 2" streaks of decay $\frac{1}{4}$ the length of the piece; red heart; stain; splits not to exceed in length four times width of wide face; 4" crook, based on 16' length; wane $\frac{1}{2}$ the width of face on which it appears by $\frac{1}{2}$ the length of the piece.

LONGLEAF UTILITY TIMBERS AND HEAVY JOISTS

344. **Grades:** Square Edge & Sound Longleaf and No. 1 Longleaf.

345. **Sizes:** 3"x8" and wider, 4"x8" and wider, and 5"x5" and larger.

346. Standard Rough sizes shall not be scant in nominal thickness or width more than $\frac{1}{4}$ " on nominal dimensions of 7" and less, and $\frac{3}{8}$ " on nominal dimensions over 7".

347. The dressed sizes, S1S1E or S4S, shall be $\frac{3}{8}$ " less than nominal sizes for 7" and under, and $\frac{1}{2}$ " less than nominal sizes for 8" and over.

348. **Square Edge & Sound Longleaf** timbers and heavy joists shall be well manufactured and shall be free from the following: through shakes: injurious ring shakes that extend to the surface; unsound and loose knots, and knots in groups that will materially impair the strength. Seasoning checks and sap stain shall not be limited, and wane not to exceed $\frac{1}{8}$ of the width of a face and $\frac{1}{4}$ of the length of the piece on one corner, or the equivalent on two or more corners on not to exceed 10% of the pieces shall be admitted.

349. **No. 1 Longleaf** timbers and heavy joists will admit the following or the equivalent: sound, encased and pith knots, the diameter of any knot not to exceed $\frac{1}{4}$ the nominal width of face on which it appears; unsound knots not to exceed 1" diameter on 7" and less, and $1\frac{1}{2}$ " diameter on 8" and over; wane not to exceed $1\frac{1}{2}$ " on one corner $\frac{1}{3}$ the length of the piece, or the equivalent on two or more corners; shakes and checks, provided the length of any one shake or check does not exceed $\frac{1}{6}$ the length of the piece, but may be at any angle in the cross section; limited number of pin worm holes well scattered; stain.

LONGLEAF FACTORY FLOORING, HEAVY ROOFING, DECKING AND HEAVY SHIPLAP

350. **Grades:** Select Merchantable Longleaf Factory, Standard Longleaf Factory, No. 1 Longleaf Factory, and No. 2 Longleaf Factory.

351. **Dressed Sizes:** The finished worked sizes in these grades are:

THICKNESS		WIDTH			
Nominal	Dressed	Nominal	DRESSED		
			D&M	Shiplapped	For Splines
2"	$1\frac{5}{8}"$	4"	$3\frac{1}{8}"$	3"	$3\frac{1}{2}"$
$2\frac{1}{2}"$	$2\frac{1}{8}"$	6"	$5\frac{1}{8}"$	5"	$5\frac{1}{2}"$
3"	$2\frac{5}{8}"$	8"	$7\frac{1}{8}"$	7"	$7\frac{1}{2}"$
4"	$3\frac{5}{8}"$	10"	$9\frac{1}{8}"$	9"	$9\frac{1}{2}"$
5"	$4\frac{5}{8}"$	12"	$11\frac{1}{8}"$	11"	$11\frac{1}{2}"$

(See Drawings on pages 106 to 113.)

352. **Moisture Content** shall be limited in 2" nominal thickness, 12" and less in width and 24' and less in length, and shall not exceed 15% if kiln dried, or 19% if air dried; for other sizes, moisture content limitation, if desired, must be specified.

353. **Standard lengths** are 8' to 24', inclusive, in multiples of 2'. Longer lengths shall be considered special; odd or fractional lengths shall be counted as of the next higher even foot.

354. **Crook** as shown below, based on 16' lengths, shall be permitted in all grades of Factory Flooring, Heavy Roofing, Decking and Heavy Shiplap, and longer or shorter pieces may have proportionate amounts of crook:

4" nominal width.....	$\frac{3}{4}"$
6" nominal width.....	$11/16"$
8" nominal width.....	$\frac{5}{8}"$
10" nominal width.....	$9/16"$
12" nominal width.....	$\frac{1}{2}"$

355. **Standard Working** for 2" and $2\frac{1}{2}"$ Heavy flooring shall be with tongue $7/16"$ thick and $\frac{3}{8}"$ wide; 3" and over shall be with tongue $\frac{3}{4}"$ thick and $\frac{3}{8}"$ wide; and the groove shall be $1/16"$ wider than the thickness of the tongue, and $1/16"$ deeper than the width of the tongue. The recession of lower lip should be $1/16"$. The tongue and groove shall be located $\frac{1}{4}$ the nominal thickness from the bottom of the piece. (See cuts on pages 107 to 109; center-matched on page 106.)

356. The lap in Heavy Shiplap shall be $\frac{1}{2}"$ wide, occupying $\frac{1}{2}$ the finished thickness. (See cut on page 113.)

357. **When Grooved for Splines**, the groove shall be the same width and depth as in the matched lumber of the same thickness, and shall be S2S and center grooved. (See cuts on pages 110 to 112.)

358. **Standard Splines** shall be rounded on the 4 corners on $\frac{1}{8}"$ radius and for 2" and $2\frac{1}{2}"$ thicknesses shall be $7/16"$ thick by $\frac{3}{4}"$ wide; for 3" and thicker, splines shall be $\frac{3}{4}"$ thick by $\frac{3}{4}"$ wide.

359. **In Beaded and "V" Factory Flooring**, the standard bead shall be $\frac{1}{2}"$ wide, $\frac{1}{4}"$ thick, and depressed $1/32"$ below line of cut; the standard "V" shall be $\frac{1}{4}"$ wide and $\frac{1}{4}"$ deep on edge; center "V" shall be $\frac{1}{4}"$ deep and $\frac{1}{2}"$ wide.

360. **Special Provision:** Pieces of D&M with $5/16"$ tongue and shiplap with $\frac{3}{8}"$ lap on one edge will be admitted in all grades.

361. **Select Merchantable Longleaf Factory Flooring and Roofing Plank** must be free from

wane and must show $\frac{2}{3}$ heart surface the entire length of the piece on one side and show some heart $\frac{2}{3}$ the length on the opposite side; will admit: pith knots which will not cause a leakage of grain and sound knots, the size of any one knot not to exceed $\frac{1}{4}$ the nominal width; surface checks; a limited number of pin holes well scattered; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; pitch pockets; pitch; pith $\frac{1}{6}$ the length of the piece; medium shakes; short splits in ends; firm red heart not to exceed 15% of the area of the face; stain. The side showing the most heart shall be the face side if worked S2S & CM or S2S & SL or S2S & CG; if worked S2S & M-B1E1S, the bead should be worked on the side showing the most heart.

362. Special: The foregoing Select Merchantable Longleaf Factory Flooring and Roofing Plank may be obtained in All Heart or Heart Face if so specified, in which case all specifications of Select Merchantable are retained excepting that having to do with heart content, and the grade designations shall be "Select Heart Longleaf Factory" or "Select Heart Face Longleaf Factory," as the case may be.

363. Standard Longleaf Factory Flooring and Roofing Plank must be free from wane, but will admit the following or the equivalent: pith knots which will not cause a leakage of grain and sound knots, the size of any one knot not to exceed $\frac{1}{4}$ the nominal width; surface checks; a limited number of pin holes well scattered; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; pitch pockets; pitch; pith $\frac{1}{6}$ the length of the piece; medium shakes; short splits in ends; firm red heart not to exceed 15% of the area of the face; stain. When worked S2S & M-B1E1S, the bead should be worked on the better side of the piece.

364. No. 1 Longleaf Factory Flooring, Decking and Heavy Shiplap will admit the following or the equivalent: pith knots which will not cause a leakage of grain and sound knots, the size of any one knot not to exceed $\frac{1}{3}$ the nom-

Working Stresses in Horizontal Shear

368. Horizontal shear stresses vary with density and with the extent of shakes, checks, and splits. The standard structural grades for joists and planks, and beams and stringers, provide unit working stresses for horizontal shear of 100 lbs. per square inch and extreme fiber in bending as shown in each structural grade; higher or lower horizontal shear stresses may be secured by specifying the working stress in horizontal shear that is desired, and when so specified, shakes, checks and splits, based on unseasoned lumber, shall be measured and limited as hereinafter provided and in accordance with the following table:

Width of Narrow Face		85 lb. Shear	100 lb. Shear	120 lb. Shear	140 lb. Shear	160 lb. Shear
Joists and Planks	2"	1"	$\frac{7}{8}"$	$\frac{5}{8}"$	$\frac{3}{8}"$	$\frac{1}{8}"$
	3"	$1\frac{1}{2}"$	$1\frac{1}{4}"$	$\frac{7}{8}"$	$\frac{5}{8}"$	$\frac{1}{2}"$
	4"	2"	$1\frac{5}{8}"$	$1\frac{1}{4}"$	$\frac{3}{4}"$	$\frac{1}{4}"$
Beams and Stringers	5"	$2\frac{1}{2}"$	$2\frac{1}{8}"$	$1\frac{1}{2}"$	$\frac{7}{8}"$	$\frac{1}{4}"$
	6"	3"	$2\frac{1}{2}"$	$1\frac{3}{4}"$	$1\frac{1}{8}"$	$\frac{3}{8}"$
	8"	4"	$3\frac{3}{8}"$	$2\frac{3}{8}"$	$1\frac{1}{2}"$	$\frac{1}{2}"$
	10"	5"	$4\frac{1}{4}"$	3"	$1\frac{7}{8}"$	$\frac{5}{8}"$
	12"	6"	$5\frac{1}{8}"$	$3\frac{1}{2}"$	$2\frac{1}{4}"$	$\frac{3}{4}"$
	14"	7"	$5\frac{7}{8}"$	$4\frac{1}{4}"$	$2\frac{3}{4}"$	$\frac{7}{8}"$
	16"	8"	$6\frac{3}{4}"$	$4\frac{3}{4}"$	$2\frac{7}{8}"$	1"

GENERAL REQUIREMENTS

369. All structural grades of Longleaf shall contain only sound wood, free from any form of decay.

370. Rough lumber shall be well manufactured and sawn full to nominal dimensions when green, except that occasional slight variation in sawing is permissible, but not more than 20 % of the pieces in any shipment may be of minimum dimensions due to such variation in sawing.

371. Rough lumber, when dry, shall not be scant of nominal green sizes more than $\frac{1}{4}"$ on nominal dimensions of 7" and less, and $\frac{3}{8}"$ on nominal dimensions above 7".

372. Rough lumber, if in excess of the nominal dimensions for dry or green lumber, may be surfaced to such nominal dimensions and

when surfaced shall be considered as rough lumber.

373. Surfaced lumber shall be well manufactured and dressed to standard dimensions as hereinafter provided, and such standard dimensions shall be minimum dimensions when measured green.

374. Dressed sizes in joists and planks (nominal thicknesses under 5" but not less than 2", and nominal widths of 4" and wider) shall be as follows:

Standard thicknesses, S1S or S2S: $\frac{3}{8}$ " off.

Standard widths, S1E or S2E: 4" to 7", $\frac{3}{8}$ " off; 8" and wider, $\frac{1}{2}$ " off.

375. Dressed sizes in beams and stringers and posts and timbers (nominal sizes 5x5 and larger) S&E or S4S shall be $\frac{3}{8}$ " off for faces 4" to 7", and $\frac{1}{2}$ " off for faces 8" and wider.

376. When the faces of structural lumber, in sizes 5x5 and larger, are of equal nominal width, grades for posts and timbers shall be used unless otherwise specified. When such faces are of unequal nominal width, grades for beams and stringers shall be used unless otherwise specified.

377. Wane shall be measured across the face on which it appears and at the point of most wane.

378. Slope of grain shall be measured over a distance sufficiently great to determine the general slope, disregarding slight local deviations; in joists and planks, and beams and stringers, it is limited only within the middle half of the length of the piece; in posts and timbers, it is limited in the full length of the piece.

379. Knots in structural lumber shall be sound and may be encased; pith knots may be admitted in pithless pieces but shall not be permitted in boxed pith pieces; knot clusters shall not be permitted; knots which cross the corners of pithless pieces and which do not extend beyond the area of permissible wane shall not be considered.

380. Knots, limited as shown in the specifications for each grade, shall be measured and limited in joists and planks as follows:

a. The only knots measured on narrow faces, except knots that cross the corners of pithless pieces, are those which do not show on wide faces, and the size is the distance between lines enclosing knot and parallel to edges of piece.

b. The size of a knot on a wide face is its average diameter, except knots that cross a corner of a pithless piece shall be measured only on the face containing the shorter portion of knot, and knots that extend entirely across the face shall be measured at both ends of each knot and between lines parallel to edges of piece.

c. The size of knots on narrow faces and at the edges of wide faces may increase proportionately from the size permitted in the middle third of the length to twice that size at the ends of the piece; and the size of knots on wide faces may increase proportionately from the size permitted at the edge to the size permitted along center line.

d. The sum of the sizes of all knots within the middle half of the length of any face, measured as specified by paragraphs 380a and 380b for the face under consideration, shall not exceed four and one-half times the size of the largest knot allowed on that face.

381. Knots, limited as shown in the specifications for each grade, shall be measured and limited in beams and stringers as follows:

a. The size of a knot on a narrow face is the distance between lines enclosing the knot and parallel to edges of piece, except that the smallest diameter shall be the size of knots extending only into the adjacent one-fourth of wide face.

b. The size of a knot on a wide face is its smallest diameter, except that knots at edges of wide faces shall be limited as on narrow faces.

c. The size of knots on narrow faces and at the edges of wide faces may increase proportionately from the size permitted in the middle third of length to twice that size at the ends of the piece, except that no knot shall exceed the size permitted along the center line of the wide face; and the knots on wide faces may increase proportionately from the size permitted at the edge to the size permitted along the center line.

d. The sum of the sizes of all knots within the middle half of the length of any face, measured as specified by paragraphs 381a and 381b for the face under consideration, shall not exceed four times the size of the largest knot allowed on that face.

382. Knots, limited as shown in the specifications for each grade, shall be measured and limited in posts and timbers as follows:

a. The size of a knot on any face is its average diameter, except knots that cross the corners of pithless pieces shall be measured only on the face containing the shorter portion of knot, and knots that extend entirely across the face shall be measured at both ends of each knot and between lines parallel to edges of piece. The maximum size knot shall not be restricted as to location in the width or length of the face.

b. The sum of the sizes of all knots in any six inches of the length of the piece, measured as specified by paragraph 382a, shall not exceed twice the largest knot allowed, but two knots of maximum permissible size are not allowed in the same six inches of length on any face.

383. Shakes, checks and splits, limited as shown in the specifications for each grade shall be measured and limited in joists and planks, and in beams and stringers, as follows:

a. Shakes are measured at the ends of the piece, but only those within the middle half of the wide faces are considered; the size of a shake is the distance between lines enclosing the shake and parallel to the wide faces of the

piece, and the permissible size is determined by the width of the narrow face of the piece.

b. Limitations for checks and splits shall apply to both ends but only within the middle half of wide face and within a distance from the end of three times the width of wide face. The size of checks within this portion of the piece shall be taken as their estimated area, along the horizontal section showing maximum area, divided by three times the width of wide face.

c. When checks on two parallel faces are opposite or approximately so, the sum of their sizes is taken, but the sum of the sizes of shakes, checks, and/or splits shall not exceed the permissible size of shake.

d. Checks extending entirely across an end within the middle half of wide face shall not extend into the piece at the center of the width of end a distance greater than the size of allowable shake.

384. Shakes, checks, and splits, limited as shown in the specifications for each grade, shall be measured and limited in posts and timbers as follows:

a. Shakes are measured at the ends of the piece, and the size of a shake is the distance between lines enclosing the shake and parallel to a pair of opposite faces.

b. The size of checks within three times the width of piece from either end shall be taken as their estimated area, along the longitudinal section showing maximum area, divided by three times the width of piece.

c. The sum of the sizes of shakes, checks and/or splits shall not exceed the permissible size of shake.

d. Checks extending entirely across an end shall not extend into the piece at center of width of end a distance greater than the size of allowable shake.

HEARTWOOD

385. Select Structural Longleaf shall show not less than 85% heart, girth measurement,

at every point in the length, unless otherwise specified.

386. Prime Structural Longleaf in joists and planks shall show one heart face in widths 7" and less, and two-thirds heart on both faces in widths over 7"; in beams and stringers, posts and timbers shall show two-thirds heart on wide faces and show some heart two-thirds of length on narrow faces, except if the wide face exceeds the narrow face by 3" or more, the narrow face shall show some heart for one-half the length, and square lumber shall show two-thirds heart on two faces and not less than one-half heart on two other faces.

387. Merchantable Structural Longleaf shall show some heart the entire length on one face if less than 9" wide; in 9" and wider, shall show some heart the entire length on both faces, or may show two-thirds heart on one face if some heart shows the entire length on the opposite face.

SELECT STRUCTURAL LONGLEAF

Paragraph 388.

2000F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)

Grade: Select Structural Longleaf.

Slope of Grain: Not greater than 1" in 18" of length.

Heart Content: See Paragraph 385.

Heart Content: See Paragraph 555.

Nominal Width of Face	SIZE OF KNOTS		Along Center Line of Wide Face	SIZE OF	
	Within Middle Third of Length			Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face	At Edge of Wide Face			
2"	$\frac{1}{2}"$			$\frac{7}{8}"$	No
3"	$\frac{3}{4}"$			$1\frac{1}{4}"$	
4"	1"	$\frac{1}{2}"$	1"	$1\frac{5}{8}"$	
6"		$\frac{7}{8}"$	$1\frac{1}{2}"$		Wane
8"		$1\frac{1}{8}"$	2"		
10"		$1\frac{3}{8}"$	$2\frac{5}{8}"$		
12"		$1\frac{3}{4}"$	$3\frac{1}{8}"$		
14"		$1\frac{7}{8}"$	$3\frac{3}{8}"$		Permitted
16"		2"	$3\frac{5}{8}"$		

Paragraph 389.

2000F - BEAMS and STRINGERS (5" and thicker)

Grade: Select Structural Longleaf.

Slope of Grain: Not greater than 1" in 18" of length.

Heart Content: See Paragraph 385.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF	
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
5"	$\frac{3}{4}"$		$2\frac{1}{8}"$	No
6"	$\frac{7}{8}"$	$\frac{7}{8}"$	$2\frac{1}{2}"$	
8"	1"	$1\frac{1}{8}"$	$3\frac{3}{8}"$	Wane
10"	$1\frac{1}{8}"$	$1\frac{3}{8}"$	$4\frac{1}{4}"$	
12"	$1\frac{1}{4}"$	$1\frac{3}{4}"$	$5\frac{1}{8}"$	
14"	$1\frac{1}{4}"$	$1\frac{7}{8}"$	$5\frac{7}{8}"$	
16"	$1\frac{1}{8}"$	2"	$6\frac{3}{4}"$	Permitted
18"		$2\frac{1}{8}"$		

Paragraph 390.

1450C - POSTS and TIMBERS (5x5 and larger)

Grade: Select Structural Longleaf.

Slope of Grain: Not greater than 1" in 14" of length.

Heart Content: See Paragraph 385.

SIZE OF			
Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	$\frac{3}{4}"$	$1\frac{5}{8}"$	No
6"	$\frac{7}{8}"$	$1\frac{7}{8}"$	
8"	$1\frac{1}{4}"$	$2\frac{5}{8}"$	Wane
10"	$1\frac{1}{2}"$	$3\frac{1}{4}"$	
12"	$1\frac{7}{8}"$	$3\frac{3}{8}"$	
14"	2"	$4\frac{1}{2}"$	
16"	$2\frac{1}{8}"$	$5\frac{1}{4}"$	Permitted
18"	$2\frac{1}{4}"$	$5\frac{7}{8}"$	

PRIME STRUCTURAL LONGLEAF

Paragraph 391.

1800F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)

Grade: Prime Structural Longleaf.

Slope of Grain: Not greater than 1" in 16" of length.

Heart Content: See Paragraph 386.

Nominal Width of Face	SIZE OF KNOTS			SIZE OF	
	Within Middle Third of Length		Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
	On Nar- row Face	At Edge of Wide Face			
2"	$\frac{5}{8}"$			$\frac{1}{8}"$	$\frac{1}{8}"$
3"	$1\frac{1}{8}"$			$1\frac{1}{4}"$	$\frac{1}{4}"$
4"	$1\frac{1}{4}"$	$\frac{3}{4}"$	$1\frac{1}{4}"$	$1\frac{5}{8}"$	$\frac{1}{4}"$
6"		$1"$	$1\frac{7}{8}"$		$\frac{3}{8}"$
8"		$1\frac{3}{8}"$	$2\frac{1}{2}"$		$\frac{1}{2}"$
10"		$1\frac{3}{4}"$	$3\frac{1}{4}"$		$\frac{5}{8}"$
12"		$2\frac{1}{8}"$	$3\frac{7}{8}"$		$\frac{3}{4}"$
14"		$2\frac{1}{4}"$	$4\frac{1}{8}"$		$\frac{7}{8}"$
16"		$2\frac{1}{2}"$	$4\frac{1}{2}"$		$1"$

Paragraph 392.

1800F - BEAMS and STRINGERS (5" and thicker)

Grade: Prime Structural Longleaf.

Slope of Grain: Not greater than 1" in 16" of length.

Heart Content: See Paragraph 386.

Nominal Width of Face	SIZE OF KNOTS		Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face		
5"	1 1/8"		2 1/8"	1/4"
6"	1 3/8"		2 1/2"	5/8"
8"	1 5/8"	1 3/8"	3 3/8"	1 1/2"
10"	1 3/4"	1 7/8"	4 1/4"	1"
12"	2"	2 1/4"	5 1/8"	5/8"
14"	2 1/8"	2 3/4"	5 7/8"	3/4"
16"	2 1/4"	3"	6 1/8"	1 1/8"
18"		3 1/4"	6 3/4"	1"
		3 3/8"		1 1/4"

Paragraph 393.

1300C - POSTS and TIMBERS (5 x 5 and larger)

Grade: Prime Structural Longleaf.

Slope of Grain: Not greater than 1" in 12" of length.

Heart Content: See Paragraph 386.

SIZE OF

Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	1 1/4"	2"	1/4"
6"	1 1/2"	2 3/8"	3/8"
8"	1 7/8"	3 1/8"	1/2"
10"	2 3/8"	3 7/8"	5/8"
12"	2 7/8"	4 3/4"	3/4"
14"	3 1/8"	5 1/2"	7/8"
16"	3 5/8"	6 1/4"	1"
18"	3 1/2"	7"	1 1/4"

MERCHANTABLE STRUCTURAL LONGLEAF

Paragraph 394.

1600F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)
 Grade: Merchantable Structural Longleaf.
 Slope of Grain: Not greater than 1" in 12" of length.
 Heart Content: See Paragraph 387.

Nominal Width of Face	SIZE OF KNOTS			SIZE OF	
	Within Middle Third of Length		Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face	At Edge of Wide Face			
2"	$\frac{3}{4}"$			$\frac{7}{8}"$	$\frac{1}{4}"$
3"	$1\frac{1}{8}"$			$1\frac{1}{4}"$	$\frac{1}{4}"$
4"	$1\frac{1}{2}"$			$1\frac{5}{8}"$	$\frac{3}{8}"$
6"		$\frac{7}{8}"$	$1\frac{1}{2}"$		$\frac{1}{2}"$
8"		$1\frac{1}{4}"$	$2\frac{1}{4}"$		$\frac{3}{8}"$
10"		$1\frac{3}{4}"$	3"		$\frac{1}{2}"$
12"		$2\frac{1}{8}"$	$3\frac{3}{4}"$		$\frac{5}{8}"$
14"		$2\frac{5}{8}"$	$4\frac{1}{2}"$		$\frac{1}{2}"$
16"		$2\frac{3}{4}"$	5"		$1\frac{1}{8}"$
		3"	$5\frac{1}{4}"$		$1\frac{3}{8}"$

Paragraph 395.

1600F - BEAMS and STRINGERS (5" and thicker)
 Grade: Merchantable Structural Longleaf.
 Slope of Grain: Not greater than 1" in 12" of length.
 Heart Content: See Paragraph 387.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF	
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
5"	$1\frac{1}{2}"$		$2\frac{1}{8}"$	$\frac{3}{8}"$
6"	$1\frac{1}{8}"$	$1\frac{7}{8}"$	$2\frac{1}{2}"$	$\frac{1}{2}"$
8"	$2\frac{1}{8}"$	$2\frac{1}{2}"$	$3\frac{1}{8}"$	$\frac{3}{8}"$
10"	$2\frac{3}{8}"$	$3\frac{1}{8}"$	$4\frac{1}{4}"$	$\frac{1}{2}"$
12"	$2\frac{5}{8}"$	$3\frac{3}{4}"$	$5\frac{1}{8}"$	1"
14"	$2\frac{7}{8}"$	4"	$5\frac{1}{2}"$	$1\frac{1}{8}"$
16"	3"	$4\frac{1}{8}"$	$6\frac{3}{4}"$	$1\frac{3}{8}"$
18"		$4\frac{5}{8}"$		$1\frac{1}{2}"$

Paragraph 396.

1200C - POSTS and TIMBERS (5x5 and larger)
 Grade: Merchantable Structural Longleaf.
 Slope of Grain: Not greater than 1" in 10" of length.
 Heart Content: See Paragraph 387.

SIZE OF			
Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	$1\frac{1}{2}"$	$2\frac{1}{4}"$	$\frac{3}{8}"$
6"	$1\frac{3}{4}"$	$2\frac{5}{8}"$	$\frac{1}{2}"$
8"	$2\frac{3}{8}"$	$3\frac{1}{2}"$	$\frac{5}{8}"$
10"	3"	$4\frac{3}{8}"$	$\frac{7}{8}"$
12"	$3\frac{5}{8}"$	$5\frac{1}{4}"$	1"
14"	$3\frac{7}{8}"$	$6\frac{1}{8}"$	$1\frac{1}{8}"$
16"	$4\frac{1}{4}"$	7"	$1\frac{3}{8}"$
18"	$4\frac{1}{2}"$	$7\frac{1}{8}"$	$1\frac{1}{2}"$

STRUCTURAL SQUARE EDGE & SOUND LONGLEAF

Paragraph 397.

1600F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)

Grade: Structural Square Edge & Sound Longleaf.

Slope of Grain: Not greater than 1" in 12" of length.

Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS			SIZE OF	
	Within Middle Third of Length		Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face	At Edge of Wide Face			
2"	3/4"			7/8"	1/4"
3"	1 1/8"			1 1/4"	1/2"
4"	1 1/2"			1 5/8"	3/8"
6"		7/8"	1 1/2"		1/2"
8"		1 1/4"	2 1/4"		1/2"
10"		1 3/4"	3"		1/2"
12"		2 1/8"	3 3/4"		1/2"
14"		2 5/8"	4 1/2"		1"
16"		2 3/4"	5"		1 1/8"
		3"	5 1/4"		1 3/8"

Paragraph 398.

1600F - BEAMS and STRINGERS (5" and thicker)

Grade: Structural Square Edge & Sound Longleaf.

Slope of Grain: Not greater than 1" in 12" length.

Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF	
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
5"	1 1/2"		2 1/8"	3/8"
6"	1 7/8"		2 1/2"	1/2"
8"	2 1/8"	1 7/8"	2 3/4"	1/2"
10"	2 3/8"	2 1/2"	3 1/2"	1/2"
12"	2 5/8"	3 1/8"	4 1/4"	1/2"
14"	2 7/8"	3 3/4"	5 1/8"	1"
16"	2 3/4"	4"	5 7/8"	1 1/8"
18"	3"	4 3/8"	6 3/4"	1 3/8"
		4 5/8"		1 1/2"

Paragraph 399.

1200C - POSTS and TIMBERS (5x5 and larger)

Grade: Structural Square Edge & Sound Longleaf.

Slope of Grain: Not greater than 1" in 10" of length.

Heart Content: No requirement for heartwood.

SIZE OF			
Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	1 1/2"	2 1/4"	3/8"
6"	1 3/4"	2 5/8"	1/2"
8"	2 3/8"	3 1/2"	1/2"
10"	3"	4 3/8"	1/2"
12"	3 5/8"	5 1/4"	1"
14"	3 7/8"	6 1/8"	1 1/8"
16"	4 1/4"	7"	1 3/8"
18"	4 1/2"	7 7/8"	1 1/2"

NO. 1 STRUCTURAL LONGLEAF

Paragraph 400.

1400F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)
Grade: No. 1 Structural Longleaf.
Slope of Grain: Not greater than 1" in 10" of length.
Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS			SIZE OF	
	Within Middle Third of Length		Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face	At Edge of Wide Face			
2"	$\frac{7}{8}"$			$\frac{1}{8}"$	$\frac{1}{4}"$
3"	$1\frac{1}{4}"$			$1\frac{1}{4}"$	$\frac{3}{8}"$
4"	$1\frac{3}{4}"$	1"	$1\frac{3}{4}"$	$1\frac{5}{8}"$	$\frac{1}{2}"$
6"		$1\frac{1}{2}"$	$2\frac{3}{8}"$		$\frac{3}{4}"$
8"		2"	$3\frac{1}{4}"$		1"
10"		$2\frac{1}{4}"$	$4\frac{1}{4}"$		$1\frac{1}{4}"$
12"		3"	$5\frac{1}{4}"$		$1\frac{1}{2}"$
14"		$3\frac{1}{4}"$	$5\frac{3}{8}"$		$1\frac{3}{4}"$
16"		$3\frac{3}{8}"$	6"		2"

Paragraph 401.

1400F - BEAMS and STRINGERS (5" and thicker)
Grade: No. 1 Structural Longleaf.
Slope of Grain: Not greater than 1" in 10" of length.
Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF	
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
5"	2"		$2\frac{1}{8}"$	$\frac{5}{8}"$
6"	$2\frac{3}{8}"$	$2\frac{3}{8}"$	$2\frac{1}{2}"$	$\frac{3}{4}"$
8"	$2\frac{3}{4}"$	$3\frac{1}{4}"$	$3\frac{3}{8}"$	1"
10"	$3\frac{1}{8}"$	4"	$4\frac{1}{4}"$	$1\frac{1}{4}"$
12"	$3\frac{3}{8}"$	$4\frac{7}{8}"$	$5\frac{1}{8}"$	$1\frac{1}{2}"$
14"	$3\frac{5}{8}"$	$5\frac{1}{4}"$	$5\frac{1}{2}"$	$1\frac{3}{4}"$
16"	4"	$5\frac{3}{8}"$	$6\frac{3}{4}"$	2"
18"		$5\frac{1}{2}"$		$2\frac{1}{4}"$

Paragraph 402.

1000C - POSTS and TIMBERS (5x5 and larger)
Grade: No. 1 Structural Longleaf.
Slope of Grain: Not greater than 1" in 8" of length.
Heart Content: No requirement for heartwood.

SIZE OF			
Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	$2\frac{1}{8}"$	$2\frac{5}{8}"$	$\frac{5}{8}"$
6"	$2\frac{1}{2}"$	$3\frac{1}{4}"$	$\frac{3}{4}"$
8"	$3\frac{3}{8}"$	$4\frac{1}{4}"$	1"
10"	$4\frac{1}{4}"$	$5\frac{3}{8}"$	$1\frac{1}{4}"$
12"	$5\frac{1}{8}"$	$6\frac{1}{2}"$	$1\frac{1}{2}"$
14"	$5\frac{1}{2}"$	$7\frac{1}{2}"$	$1\frac{3}{4}"$
16"	$5\frac{7}{8}"$	$8\frac{1}{2}"$	2"
18"	$6\frac{1}{4}"$	$9\frac{3}{4}"$	$2\frac{1}{4}"$

SHAKE MEASUREMENT IN BEAMS

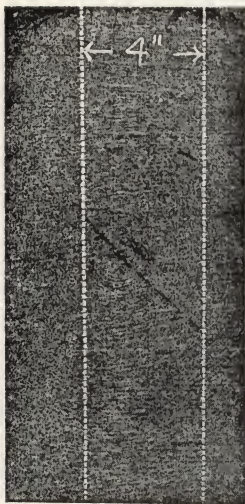


Fig. 1

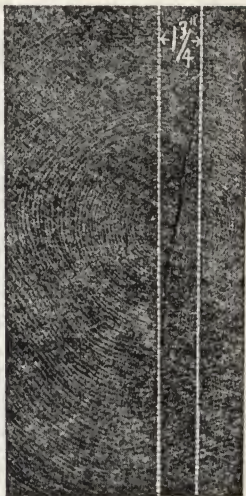


Fig. 2

Herewith are two 8"x16" Beams. Dotted lines are drawn parallel to the wide faces, enclosing the shake as prescribed for pieces with unequal faces. Figure 1 shows a shake 4" in size, while the narrow face of the piece is 8". That shake is not permissible in any Structural grade as written. In Figure 2 the shake is $1\frac{3}{4}$ ", the narrow face is 8", and this shake will be acceptable in any Structural grade with special specification for a horizontal shear of 135 lbs. or less. If no specification for horizontal shear is made this shake is acceptable in any of the Structural grades as written.

If the piece in Figure 1 had been turned so the shake would be more nearly parallel to the wide faces, it would have come within any Structural grade.

By a slight change in the shake in Figure 2, bringing the shake within two parallel lines about $\frac{1}{2}$ " apart, the horizontal shear value would have been made 160 lbs. instead of 135 lbs.

SPECIFICATIONS FOR Shortleaf Yellow Pine

**Dimension and Small Timbers
Utility Timbers and Heavy Joists
Factory Flooring, Decking
and Heavy Shiplap
Structural Lumber**

DENSITY RULE

403. a. **Dense Southern Pine** shall average on either one end or the other not less than 6 annual rings per inch, and in addition, one-third or more summerwood (the darker, harder portion of the annual rings), measured over a 3-inch portion of a radial line located as described below. The contrast in color between summerwood and springwood shall be distinct. Pieces averaging less than six annual rings per inch shall be accepted as dense if averaging one-half or more summerwood.

b. The radial line shall be representative of the average growth on the cross-section. When the radial line specified is not representative, it shall be shifted sufficiently to present a fair average, but the distance from the pith to the beginning of the 3" portion of the line in boxed pith pieces shall not be changed. In case of disagreement, two radial lines shall be chosen, and the number of rings per inch and percentage of summerwood shall be the average determined on these lines.

c. In boxed pith pieces, the measurement shall be made over the third, fourth, and fifth inches from the pith along the radial line. In pieces containing the pith, but not a 5-inch radial line, which are less than 2 by 8 inches in section or less than 8 inches in width, that do not show over 16 square inches on the cross-section, the inspection shall apply to the second inch from the pith. In larger pieces that do not show a 5-inch radial line, the inspection shall apply to the 3 inches farthest from the pith.

d. In cases where pieces do not contain the pith and it is impossible to locate it with any degree of accuracy, the same inspection shall be made over 3 inches on an approximate radial line beginning at the edge nearest the pith in pieces over 3 inches in thickness, and on the second inch nearest the pith in pieces 3 inches or less in thickness.

e. In inspection for density, reasonable variation of opinion between inspectors must be recognized. In reinspection of a particular lot of lumber for density, for every three pieces accepted as having one-third or more summerwood, one of the remaining pieces shall be accepted if agreed upon as having between 30 and $33\frac{1}{3}$ per cent summerwood.

CLOSE GRAIN

404. **Close-Grain** lumber shall average on either one end or the other not less than 6 or more than 20 annual rings per inch, measured over a 3-inch portion of a radial line, if present, or over such portion of a radial line less than 3" as may be present, and which shall be representative of the average growth on the cross-section except that pieces averaging at least five and more than 20 annual rings per inch shall be permitted if having one-third or more summerwood. In case of disagreement two radial lines shall be chosen and the number of rings per inch shall be the average of the two lines.

MEDIUM GRAIN

405. **Medium Grain** lumber shall average on either one end or the other not less than four annual rings per inch, measured over a 3-inch portion of a radial line, if present, or over such portion less than 3 inch as may be present, and which shall be representative of the average growth on the cross-section.

SHORTLEAF DIMENSION

406. **Grades:** No. 1, No. 2 and No. 3. (No. 1 has a working stress rating of 1200F. For other working stress grades, see paragraphs 414, 416 and 417.)

407. **Rough Sizes:** 2" thick; 3", 4", 6", 8", 10" and 12" wide. (See paragraphs 121, 122, 124 and 125.)

408. **Dressed Sizes:** 1 $\frac{5}{8}$ " thick; 2 $\frac{5}{8}$ ", 3 $\frac{5}{8}$ ", 5 $\frac{5}{8}$ ", 7 $\frac{1}{2}$ ", 9 $\frac{1}{2}$ " and 11 $\frac{1}{2}$ " wide. The dressed thickness for Standard Industrial Dimension is 1 $\frac{3}{4}$ ".

409. **Standard lengths** are 4' to 24', inclusive, in multiples of 2', except that 9' shall be standard in 2x4, 2x6 and 2x8.

410. **Short lengths** under 9' shall not be permitted in standard shipments of No. 1 and No. 2, except by special agreement; 20% of mixed 6' and 8' lengths shall be permitted in No. 3.

411. **Crook** as shown in the following table, based on 16' lengths, shall be permitted in 2" Dimension and proportionate amounts of crook shall be permitted in longer or shorter pieces.

SIZES	NO. 1 GRADES	NO. 2 GRADES
2 x 3"	13/16"	1 1/16"
2 x 4"	3/4"	1"
2 x 6"	11/16"	15/16"
2 x 8"	5/8"	7/8"
2 x 10"	9/16"	13/16"
2 x 12"	1/2"	3/4"

412. The **moisture content** for No. 1 and No. 2 dimension, kiln dried, shall not exceed 15%; if air dried, the moisture content shall not exceed 19%.

413. **No. 1 dimension** must be medium grain and suitable for use as substantial framing lumber without waste, and will admit the following or the equivalent: sound, firm, encased and pith knots, which in the nominal rough piece do not occupy more than $\frac{1}{4}$ the cross-section if located at the edge of wide face, or $\frac{1}{3}$ the cross-section if located away from the edge, provided the sum of the sizes of all knots within the middle half of length of any face shall not exceed 4 $\frac{1}{2}$ times the size of the largest knot allowed; surface or through checks; a limited number of medium holes well scattered; loosened or torn grain or imperfections in dressing; pitch pockets; pitch; pith; short splits; medium shakes; firm red

heart; medium stain; slope of grain not to exceed 1" in 10" of length; wane $\frac{1}{4}$ the thickness, $\frac{1}{4}$ the width and $\frac{1}{4}$ the length of the piece. (No. 1 has a working stress rating of 1200F.)

414. **NOTE:** The foregoing No. 1 dimension may be specified to be dense, in which case all of the grade provisions for No. 1 dimension shall apply, except the lumber shall be dense instead of medium grain, and the working stress shall be 1400F. The grade designation shall be **No. 1 Dense.**

415. **No. 2 dimension** must be suitable for use without waste, and will admit the following or the equivalent: sound, firm, encased and pith knots which do not occupy more than one-half the cross-section of the nominal rough piece at any point; loose, hollow or decayed knots, and knot holes one-half the maximum size knots permitted; through checks; deep torn grain or imperfections in dressing; through pitch pockets; pitch; pith; through shakes; medium splits; 1" streaks of decay not to exceed $\frac{1}{4}$ the length of the piece; red heart; medium stain; wane not to exceed $\frac{1}{3}$ the wide face and each piece to have a $\frac{1}{2}$ " nailing edge at every part of length of narrow face. Dimension with variation in sawing or equivalent mismanufacture which is not more than $\frac{1}{8}$ " scant of standard dressed thickness or width, shall be admitted in No. 2, provided such pieces are in all other respects as good as No. 1 dimension for the length of such variation.

416. **NOTE:** The foregoing No. 2 dimension may be graded to provide a working stress quality as **No. 2 Medium Grain—900F**, and when so specified, the additional limitations shall be as follows: sound, firm, encased and pith knots, if located at the edge of wide face, shall not occupy more than $\frac{1}{3}$ the cross-section; the sum of the sizes of all knots within the middle half of the length of any face shall not exceed $4\frac{1}{2}$ times the size of the largest knot allowed; and slope of grain shall not exceed 1" in 8" of length.

417. **NOTE:** The foregoing No. 2 dimension may be graded to provide a working stress qual-

ity as **No. 2 Dense—1050F**, and when so specified, the additional limitations shall be as follows: sound, firm, encased and pith knots, if located at the edge of wide face, shall not occupy more than $\frac{1}{3}$ the cross-section; the sum of the sizes of all knots within the middle half of the length of any face shall not exceed $4\frac{1}{2}$ times the size of the largest knot allowed; and slope of grain shall not exceed 1" in 8" of length.

418. **No. 3** dimension will include all pieces below the grade of **No. 2** dimension which are suitable for use as low cost building material without wasting more than 25% of each piece of $\frac{1}{3}$ of the number of pieces in any item of a shipment, but the usable portion must not be more than $\frac{1}{2}$ " scant of standard finished width nor more than $\frac{3}{8}$ " scant of standard finished thickness.

SHORTLEAF SMALL TIMBERS

419. **Grades:** Square Edge & Sound, **No. 1** and **No. 2**. (May be specified to be Dense.)

420. **Sizes:** 3"x3" to 4"x6", inclusive.

421. **Standard Rough Sizes** shall not be scant in nominal thickness or width more than $\frac{1}{4}$ ".

422. **Dressed Sizes:** S1S1E or S4S, shall be $\frac{3}{8}$ " less than nominal sizes.

423. **Standard lengths** are 10' to 24', inclusive, in multiples of 2'.

424. **Crook** shall be permitted in Square Edge & Sound and **No. 1** small timbers as permitted in the corresponding widths of **No. 1** dimension (par. 411).

425. **Square Edge & Sound** small timbers shall be well manufactured and shall be free from the following: through shakes; injurious ring shakes that extend to the surface; unsound and loose knots, and knots in groups that will materially impair the strength. Seasoning checks and sap stain shall not be limited, and wane not to exceed $\frac{1}{8}$ of the width of a face and $\frac{1}{4}$ of the length of the piece on one corner, or the equivalent on two or more corners on not to exceed 10% of the pieces shall be admitted.

426. **No. 1** small timbers must be suitable for use as substantial framing lumber, and will admit the following or the equivalent: sound, encased and pith knots, which in the nominal rough piece do not occupy more than $\frac{1}{3}$ the cross-section; smaller defective knots which do not weaken the piece more than the knots aforesaid; surface or through checks; a limited number of medium holes, well scattered; loosened or torn grain, or other mismanufacture which will not cause waste; pitch pockets; pitch; pith; short splits in ends; shakes that do not go through; firm red heart; stain; wane $\frac{1}{4}$ the thickness, $\frac{1}{4}$ the width, and $\frac{1}{4}$ the length of the piece.

427. **No. 2** small timbers will admit the following or the equivalent: knots of any size and quality; through checks; holes; through pitch pockets; pitch; pith; through shakes; mismanufacture such as deep torn grain, skips of any kind, failure to dress on any side, miscut lumber not more than $\frac{3}{8}$ " scant of nominal thickness and $\frac{1}{2}$ " scant of nominal width; 2" streaks of decay $\frac{1}{4}$ the length of the piece; red heart; stain; splits not to exceed in length four times width of wide face; 4" crook, based on 16' length; wane $\frac{1}{2}$ the width of face on which it appears by $\frac{1}{2}$ the length of the piece.

SHORTLEAF UTILITY TIMBERS AND HEAVY JOISTS

428. **Grades:** Square Edge & Sound, and No. 1 (May be specified to be Dense).

429. **Sizes:** 3"x8" and wider, 4"x8" and wider, and 5"x5" and larger.

430. **Standard Rough** sizes shall not be scant in nominal thickness or width more than $\frac{1}{4}$ " on nominal dimensions of 7" and less, and $\frac{3}{8}$ " on nominal dimensions over 7".

431. The dressed sizes, S1S1E or S4S, shall be $\frac{3}{8}$ " less than nominal sizes for 7" and under, and $\frac{1}{2}$ " less than nominal sizes for 8" and over.

432. **Square Edge & Sound** timbers and heavy joists shall be well manufactured and shall be free from the following: through shakes; injurious ring shakes that extend to the surface;

unsound and loose knots, and knots in groups that will materially impair the strength. Seasoning checks and sap stain shall not be limited, and wane not to exceed $\frac{1}{8}$ of the width of a face and $\frac{1}{4}$ of the length of the piece on one corner, or the equivalent on two or more corners on not to exceed 10% of the pieces shall be admitted.

433. **No. 1 timbers and heavy joists** will admit the following or the equivalent: sound, encased and pith knots, the diameter of any knot not to exceed $\frac{1}{4}$ the nominal width of face on which it appears; unsound knots not to exceed 1" diameter on 7" and less, and 1½" diameter on 8" and over; wane not to exceed 1½" on one corner $\frac{1}{3}$ the length of the piece, or the equivalent on two or more corners; shakes and checks, provided the length of any one shake or check does not exceed $\frac{1}{6}$ the length of the piece, but may be at any angle in the cross-section; limited number of pin worm holes well scattered; stain.

SHORTLEAF FACTORY FLOORING HEAVY ROOFING

DECKING and HEAVY SHIPLAP

434. **Grades:** Dense Standard Factory, No. 1 Factory, No. 2 Factory.

435. **Dressed Sizes:** The finished worked sizes in these grades are:

THICKNESS		WIDTH			
Nominal	Dressed	Nominal	DRESSED		
			D&M	Shiplapped	For Splines
2"	1½"	4"	3½"	3"	3½"
2½"	2½"	6"	5½"	5"	5½"
3"	2¾"	8"	7½"	7"	7½"
4"	3¾"	10"	9½"	9"	9½"
5"	4¾"	12"	11½"	11"	11½"

(See Drawings on pages 106 to 113.)

436. **Moisture Content** shall be limited in 2" nominal thickness, 12" and less in width and 24' and less in length, and shall not exceed 15% if kiln dried, or 17% if air dried; for other sizes, moisture content limitation, if desired, must be specified.

437. **Standard lengths** are 8' to 24', inclusive in multiples of 2'. Longer lengths shall be considered special; odd or fractional lengths shall be counted as of the next higher even foot.

438. **Crook** as shown below, based on 16' lengths, shall be permitted in all grades of Factory Flooring, Heavy Roofing, Decking and Heavy Shiplap, and longer or shorter pieces may have proportionate amounts of crook:

4" nominal width.....	$\frac{3}{4}"$
6" nominal width.....	$11/16"$
8" nominal width.....	$\frac{5}{8}"$
10" nominal width.....	$9/16"$
12" nominal width.....	$\frac{1}{2}"$

439. **Standard Working** for 2" and $2\frac{1}{2}"$ Heavy Flooring shall be with tongue $7/16"$ thick and $\frac{3}{8}"$ wide; 3" and over shall be with tongue $\frac{3}{4}"$ thick and $\frac{3}{8}"$ wide; and the groove shall be $1/16"$ wider than the thickness of the tongue; and $1/16"$ deeper than the width of the tongue. The recession of lower lip should be $1/16"$. The tongue and groove shall be located $\frac{1}{4}$ the nominal thickness from the bottom of the piece. (See cuts on pages 107 to 109; center-matched on page 106.)

440. **The lap** in Heavy Shiplap shall be $\frac{1}{2}"$ wide, occupying $\frac{1}{2}$ the finished thickness. (See cut on page 113.)

441. **When Grooved for Splines**, the groove shall be the same width and depth as in matched lumber of the same thickness, and shall be S2S and center grooved. (See cuts on pages 110 to 112.)

442. **Standard Splines** shall be rounded on the 4 corners on $\frac{1}{8}"$ radius and for 2" and $2\frac{1}{2}"$ thicknesses shall be $7/16"$ thick by $\frac{3}{4}"$ wide; for 3" and thicker, splines shall be $\frac{3}{4}"$ thick by $\frac{3}{4}"$ wide.

443. **In Beaded and "V" Factory Flooring**, the standard bead shall be $\frac{1}{2}"$ wide, $\frac{1}{4}"$ thick and depressed $1/32"$ below line of cut; the standard "V" shall be $\frac{1}{4}"$ wide and $\frac{1}{4}"$ deep on edge; center "V" shall be $\frac{1}{4}"$ deep and $\frac{1}{2}"$ wide.

444. **Special Provision:** Pieces of D&M with 5/16" tongue and shiplap with 3/8" lap on one edge will be admitted in all grades.

445. **Dense Standard Factory Flooring and Roofing Plank** must be free from wane, but will admit the following or the equivalent: pith knots which will not cause a leakage of grain and sound knots, the size of any one knot not to exceed 1/4 the nominal width; surface checks; a limited number of pin holes well scattered; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; pitch pockets; pitch; pith 1/6 the length of the piece; medium shakes; short splits in ends; firm red heart not to exceed 15% of the area of the face; stain. When worked S2S & M-B1E1S, the bead should be worked on the better side of the piece.

446 **No. 1 Factory Flooring, Decking and Heavy Shiplap** will admit the following or the equivalent: pith knots which will not cause a leakage of grain and sound knots, the size of any one knot not to exceed 1/3 the nominal width; surface checks; a limited number of pin holes; loosened or heavy torn grain or other imperfections in dressing that will not cause waste; pitch pockets; pitch; pith 1/6 the length of the piece; medium shakes; firm red heart; stain; wane 1/4" deep, 1/2" wide, and 1/6 the length of the piece. Wane is admissible on the reverse side equivalent to 1/3 the width and 1/6 the length of the piece, provided it does not extend into the tongue or groove if worked D&M or for 1/2 the thickness of the lap if ship-lapped; however, it may extend into the groove or through the lap or for 1/2 the thickness of the tongue for a length of 10", provided the maximum width and length decrease in proportion to the increase in depth.

447. **No. 2 Factory Flooring, Decking and Heavy Shiplap** must be suitable for use without waste, and will admit the following or the equivalent: sound, unsound, encased and pith knots, the size of any one knot not to exceed 1/2 the nominal width; loose, hollow and decayed knots, and holes, the diameter of any one knot or hole

not to exceed $\frac{1}{4}$ the width of the piece; through checks; deep torn grain or other imperfections in dressing; through pitch pockets; pitch; pith; through shakes; splits or streaks of advanced decay not to exceed $\frac{1}{4}$ the length of the piece; unsound red heart; stain; wane. Pieces with variation in sawing or equivalent mismanufacture which are not more than $\frac{1}{8}$ " scant of standard dressed thickness or width, shall be admitted in No. 2 Factory, provided such pieces are in all other respects as good as No. 1 Factory for the length of such variation.

SHORTLEAF STRUCTURAL LUMBER

Unit Working Stresses

448. The Structural grades of Shortleaf Southern Pine conform to American Lumber Standards, and definite unit working stresses in pounds per square inch are assigned to each grade as follows:

See Note (a)	Extreme Fiber in Bending	Com- pression Across Grain	Hori- zontal Shear	Com- pression Parallel To Grain
Dense Select Structural . . .	2000	380	100	1450
Dense Structural	1800	380	100	1300
Dense Structural Square Edge & Sound	1600	380	100	1200
Dense No. 1 Structural . . .	1400	380	100	1000

MODULUS OF ELASTICITY - All grades ——— 1,600,000 ———

(a) *Stresses as shown for joists and planks are applicable if used flat or on edge.*

Average Ratios Among Stresses for Different Exposures

449. The working stress values shown in the foregoing table may be used under severe conditions of exposure when the lumber has adequate heartwood or when given an approved preservative treatment. If the lumber is lacking in heartwood or is untreated, the amount by which the above stresses should be reduced to adapt them to exposed conditions of use should

be left to the judgment of the engineer. The amount of reduction may be dependent upon the extent to which the exposure favors decay, the required life of the structure, the frequency and thoroughness of inspection, and the original cost and replacement cost. The following table may be used as a guide and is an approved basis for reduction:

	Always Dry or Always Submerged	Occasionally Wet But Quickly Dried	Continuously Damp or Wet
Extreme Fiber in Bending...	100%	85%	71%
Compression Across Grain...	100%	70%	58%
Compression Parallel to Grain	100%	92%	78%
Horizontal Shear.....	100%	100%	100%
Modulus of Elasticity.....	100%	100%	100%

Working Stresses in Horizontal Shear

450. Horizontal shear stresses vary with density and with the extent of shakes, checks and splits. The standard structural grades for joists and planks, and beams and stringers, provide unit working stresses for horizontal shear of 100 lbs. per square inch and extreme fiber in bending as shown in each structural grade; higher or lower horizontal shear stresses may be secured by specifying the working stress in horizontal shear that is desired, and when so specified, shakes, checks and splits, based on unseasoned lumber, shall be measured and limited as hereinafter provided and in accordance with the following table:

Width of Narrow Face	85 lb. Shear	100 lb. Shear	120 lb. Shear	140 lb. Shear	160 lb. Shear
Joists and Planks { 2"	1"	$\frac{7}{8}"$	$\frac{5}{8}"$	$\frac{3}{8}"$	$\frac{1}{8}"$
{ 3"	$1\frac{1}{2}"$	$1\frac{1}{4}"$	$\frac{7}{8}"$	$\frac{5}{8}"$	$\frac{3}{8}"$
{ 4"	2"	$1\frac{3}{8}"$	$1\frac{1}{4}"$	$\frac{3}{4}"$	$\frac{1}{4}"$
Beams { 5"	$2\frac{1}{2}"$	$2\frac{1}{8}"$	$1\frac{1}{2}"$	$\frac{7}{8}"$	$\frac{1}{4}"$
{ 6"	3"	$2\frac{1}{2}"$	$1\frac{3}{4}"$	$1\frac{1}{8}"$	$\frac{3}{8}"$
{ 8"	4"	$3\frac{3}{4}"$	$2\frac{3}{8}"$	$1\frac{1}{2}"$	$\frac{1}{2}"$
and { 10"	5"	$4\frac{1}{4}"$	3"	$1\frac{7}{8}"$	$\frac{5}{8}"$
{ 12"	6"	$5\frac{1}{8}"$	$3\frac{1}{2}"$	$2\frac{1}{4}"$	$\frac{3}{4}"$
Stringers { 14"	7"	$5\frac{1}{8}"$	$4\frac{1}{4}"$	$2\frac{1}{2}"$	$\frac{7}{8}"$
{ 16"	8"	$6\frac{3}{4}"$	$4\frac{3}{4}"$	$2\frac{7}{8}"$	1"

GENERAL REQUIREMENTS

451. All structural grades of Shortleaf shall contain only sound wood, free from any form of decay.

452. Rough lumber shall be well manufactured and sawn full to nominal dimensions when green, except that occasional slight variation in sawing is permissible, but not more than 20% of the pieces in any shipment may be of minimum dimensions due to such variation in sawing.

453. Rough lumber, when dry, shall not be scant of nominal green sizes more than $\frac{1}{4}$ " on nominal dimensions of 7" and less, and $\frac{3}{8}$ " on nominal dimensions above 7".

454. Rough lumber, if in excess of the nominal dimensions for dry or green lumber, may be surfaced to such nominal dimensions and when surfaced shall be considered as rough lumber.

455. Surfaced lumber shall be well manufactured and dressed to standard dimensions as hereinafter provided, and such standard dimensions shall be minimum dimensions when measured green.

456. Dressed sizes in joists and planks (nominal thicknesses under 5" but not less than 2", and nominal widths of 4" and wider) shall be as follows:

Standard thicknesses, S1S or S2S: $\frac{3}{8}$ " off.

Standard widths, S1E or S2E: 4" to 7", $\frac{3}{8}$ " off; 8" and wider, $\frac{1}{2}$ " off.

457. Dressed sizes in beams and stringers and posts and timbers (nominal sizes 5x5 and larger) S&E or S4S shall be $\frac{3}{8}$ " off for faces 4" to 7", and $\frac{1}{2}$ " off for faces 8" and wider.

458. When the faces of structural lumber, in sizes 5x5 and larger, are of equal nominal width, grades for posts and timbers shall be used unless otherwise specified. When such faces are of unequal nominal width, grades for beams and stringers shall be used unless otherwise specified.

stricted as to location in the width or length of the face.

b. The sum of the sizes of all knots in any six inches of the length of the piece, measured as specified by paragraph 464a, shall not exceed twice the largest knot allowed, but two knots of maximum permissible size are not allowed in the same six inches of length on any face.

465. Shakes, checks, and splits, limited as shown in the specifications for each grade shall be measured and limited in joists and planks, and in beams and stringers, as follows:

a. Shakes are measured at the ends of the piece, but only those within the middle half of the wide faces are considered; the size of a shake is the distance between lines enclosing the shake and parallel to the wide faces of the piece, and the permissible size is determined by the width of the narrow face of the piece.

b. Limitations for checks and splits shall apply to both ends but only within the middle half of wide face and within a distance from the end of three times the width of wide face. The size of checks within this portion of the piece shall be taken as their estimated area, along the horizontal section showing maximum area, divided by three times the width of wide face.

c. When checks on two parallel faces are opposite or approximately so, the sum of their sizes is taken, but the sum of the sizes of shakes, checks, and/or splits shall not exceed the permissible size of shake.

d. Checks extending entirely across an end within the middle half of wide face shall not extend into the piece at the center of the width of end a distance greater than the size of allowable shake.

466. Shakes, checks, and splits, limited as shown in the specifications for each grade, shall be measured and limited in posts and timbers as follows:

a. Shakes are measured at the ends of the piece, and the size of a shake is the distance between lines enclosing the shake and parallel to a pair of opposite faces.

b. The size of checks within three times the width of piece from either end shall be taken as their estimated area, along the longitudinal section showing maximum area, divided by three times the width of piece.

c. The sum of the size of shakes, checks and/or splits shall not exceed the permissible size of shake.

d. Checks extending entirely across an end shall not extend into the piece at center of width of end a distance greater than the size of allowable shake.

DENSE STRUCTURAL SQUARE EDGE & SOUND

Paragraph 473.

1600F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)

Grade: Dense Structural Square Edge & Sound.

Slope of Grain: Not greater than 1" in 12" of length.

Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS			SIZE OF	
	Within Middle Third of Length		Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face	At Edge of Wide Face			
2"	$\frac{3}{4}"$			$\frac{7}{8}"$	$\frac{1}{4}"$
3"	$1\frac{1}{8}"$			$1\frac{1}{4}"$	$\frac{1}{4}"$
4"	$1\frac{1}{2}"$		$1\frac{1}{2}"$	$1\frac{5}{8}"$	$\frac{3}{8}"$
6"		$\frac{7}{8}"$	$2\frac{1}{4}"$		$\frac{1}{2}"$
8"		$1\frac{1}{4}"$	3"		$\frac{5}{8}"$
10"		$2\frac{1}{8}"$	$3\frac{3}{4}"$		$\frac{7}{8}"$
12"		$2\frac{5}{8}"$	$4\frac{1}{4}"$		1"
14"		$2\frac{3}{4}"$	5"		$1\frac{1}{8}"$
16"		3"	$5\frac{1}{4}"$		$1\frac{3}{8}"$

Paragraph 474.

1600F - BEAMS and STRINGERS (5" and thicker)

Grade: Dense Structural Square Edge & Sound.

Slope of Grain: Not greater than 1" in 12" of length.

Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF	
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
5"	$1\frac{1}{2}"$		$2\frac{1}{8}"$	$\frac{3}{8}"$
6"	$1\frac{5}{8}"$	$1\frac{7}{8}"$	$2\frac{1}{2}"$	$\frac{1}{2}"$
8"	$2\frac{1}{8}"$	$2\frac{1}{2}"$	$3\frac{3}{8}"$	$\frac{5}{8}"$
10"	$2\frac{3}{8}"$	$3\frac{1}{8}"$	$4\frac{1}{4}"$	$\frac{7}{8}"$
12"	$2\frac{5}{8}"$	$3\frac{3}{4}"$	$5\frac{1}{8}"$	1"
14"	$2\frac{7}{8}"$	4"	$5\frac{7}{8}"$	$1\frac{1}{8}"$
16"	3"	$4\frac{3}{8}"$	$6\frac{1}{4}"$	$1\frac{3}{8}"$
18"		$4\frac{5}{8}"$		$1\frac{1}{2}"$

Paragraph 475.

1200C - POSTS and TIMBERS (5x5 and larger)

Grade: Dense Structural Square Edge & Sound.

Slope of Grain: Not greater than 1" in 10" of length.

Heart Content: No requirement for heartwood.

SIZE OF			
Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	$1\frac{1}{2}"$	$2\frac{1}{4}"$	$\frac{3}{8}"$
6"	$1\frac{3}{4}"$	$2\frac{5}{8}"$	$\frac{1}{2}"$
8"	$2\frac{1}{8}"$	$3\frac{1}{2}"$	$\frac{5}{8}"$
10"	3"	$4\frac{3}{8}"$	$\frac{7}{8}"$
12"	$3\frac{5}{8}"$	$5\frac{1}{4}"$	1"
14"	$3\frac{7}{8}"$	$6\frac{1}{8}"$	$1\frac{1}{8}"$
16"	$4\frac{1}{4}"$	7"	$1\frac{3}{8}"$
18"	$4\frac{1}{2}"$	$7\frac{7}{8}"$	$1\frac{1}{2}"$

DENSE NO. 1 STRUCTURAL

Paragraph 476.

1400F - JOISTS and PLANKS (2" to 4" thick, 4" and wider)

Grade: Dense No. 1 Structural.

Slope of Grain: Not greater than 1" in 10" of length.

Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF		
	Within Middle Third of Length		Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
	On Narrow Face	At Edge of Wide Face			
2"	$\frac{7}{8}"$			$\frac{7}{8}"$	$\frac{1}{4}"$
3"	$1\frac{1}{4}"$			$1\frac{1}{4}"$	$\frac{3}{8}"$
4"	$1\frac{3}{4}"$	1"	$1\frac{3}{4}"$	$1\frac{3}{8}"$	$\frac{1}{2}"$
6"		$1\frac{1}{2}"$	$2\frac{1}{8}"$		$\frac{3}{4}"$
8"		2"	$3\frac{1}{2}"$		1"
10"		$2\frac{1}{2}"$	$4\frac{1}{4}"$		$1\frac{1}{4}"$
12"		3"	$5\frac{1}{4}"$		$1\frac{1}{2}"$
14"		$3\frac{1}{4}"$	$5\frac{5}{8}"$		$1\frac{3}{4}"$
16"		$3\frac{3}{8}"$	6"		$2\frac{1}{4}"$

Paragraph 477.

1400F - BEAMS and STRINGERS (5" and thicker)

Grade: Dense No. 1 Structural.

Slope of Grain: Not greater than 1" in 10" of length.

Heart Content: No requirement for heartwood.

Nominal Width of Face	SIZE OF KNOTS		SIZE OF	
	On Narrow Face or at Edge of Wide Face - Middle Third of Length	Along Center Line of Wide Face	Shakes Checks Splits	Wane at Any Point on Any Face
5"	2"		$2\frac{1}{8}"$	$\frac{5}{8}"$
6"	$2\frac{1}{2}"$	$2\frac{3}{8}"$	$2\frac{1}{2}"$	$\frac{3}{4}"$
8"	$2\frac{3}{4}"$	$3\frac{1}{4}"$	$3\frac{3}{8}"$	1"
10"	$3\frac{1}{2}"$	4"	$4\frac{1}{4}"$	$1\frac{1}{4}"$
12"	$3\frac{3}{8}"$	$4\frac{1}{8}"$	$5\frac{1}{8}"$	$1\frac{1}{2}"$
14"	$3\frac{5}{8}"$	$5\frac{1}{4}"$	$5\frac{1}{8}"$	$1\frac{3}{4}"$
16"	4"	$5\frac{5}{8}"$	$6\frac{3}{4}"$	2"
18"		$5\frac{7}{8}"$		$2\frac{1}{4}"$

Paragraph 478.

1000C - POSTS and TIMBERS (5x5 and larger)

Grade: Dense No. 1 Structural.

Slope of Grain: Not greater than 1" in 8" of length.

Heart Content: No requirement for heartwood.

SIZE OF			
Nominal Width of Face	Knots at Any Point on Any Face	Shakes, Checks and Splits	Wane at Any Point on Any Face
5"	$2\frac{1}{8}"$	$2\frac{3}{8}"$	$\frac{5}{8}"$
6"	$2\frac{1}{2}"$	$3\frac{1}{4}"$	$\frac{3}{4}"$
8"	$3\frac{3}{8}"$	$4\frac{1}{4}"$	1"
10"	$4\frac{1}{4}"$	$5\frac{3}{8}"$	$1\frac{1}{4}"$
12"	$5\frac{1}{8}"$	$6\frac{1}{2}"$	$1\frac{1}{2}"$
14"	$5\frac{1}{2}"$	$7\frac{1}{2}"$	$1\frac{3}{4}"$
16"	$5\frac{7}{8}"$	$8\frac{1}{2}"$	2"
18"	$6\frac{1}{4}"$	$9\frac{3}{4}"$	$2\frac{1}{4}"$

SHAKE MEASUREMENT IN BEAMS

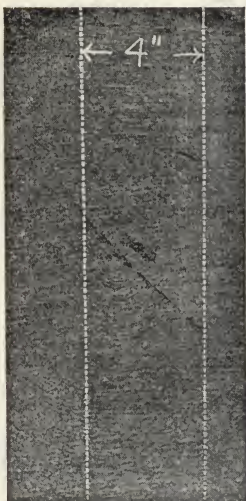


Fig. 1



Fig. 2

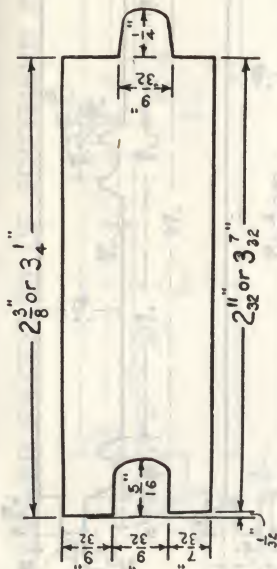
Herewith are two 8"x16" Beams. Dotted lines are drawn parallel to the wide faces, enclosing the shake as prescribed for pieces with unequal faces. Figure 1 shows a shake 4" in size, while the narrow face of the piece is 8". That shake is not permissible in any Structural grade as written. In Figure 2 the shake is $1\frac{3}{4}$ ", the narrow face is 8", and this shake will be acceptable in any Structural grade with special specification for a horizontal shear of 135 lbs. or less. If no specification for horizontal shear is made this shake is acceptable in any of the Structural grades as written.

If the piece in Figure 1 had been turned so the shake would be more nearly parallel to the wide faces, it would have come within any Structural grade.

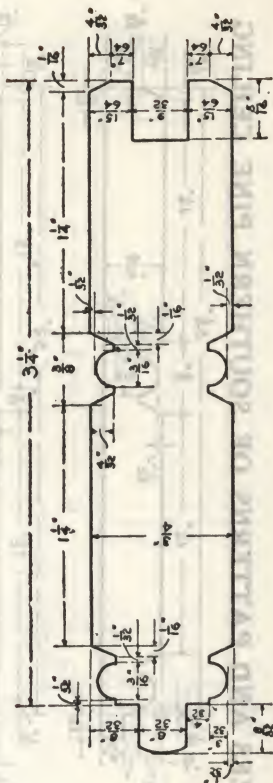
By a slight change in the shake in Figure 2, bringing the shake within two parallel lines about $\frac{1}{2}$ " apart, the horizontal shear value would have been made 160 lbs. instead of 135 lbs.

STANDARD SIZES OF SOUTHERN PINE FLOORING AND PARTITION

**1 x 3 and
1 x 4
Flooring.**

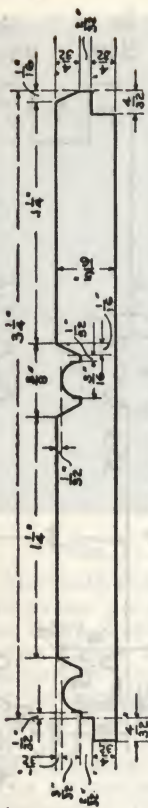


1 x 4
Partition.

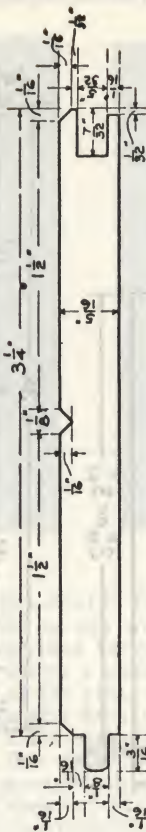


STANDARD SIZES AND PATTERNS OF SOUTHERN PINE CEILING

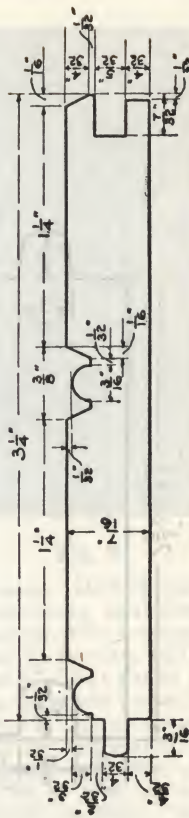
5/16" Ceiling,
Shiplapped.



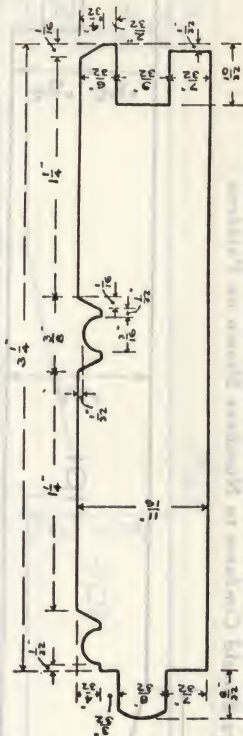
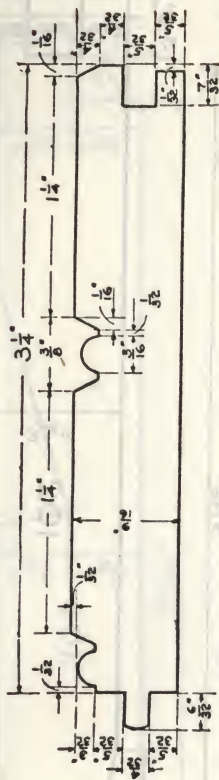
5/16" Ceiling,
D. & M.



7/16" Ceiling.

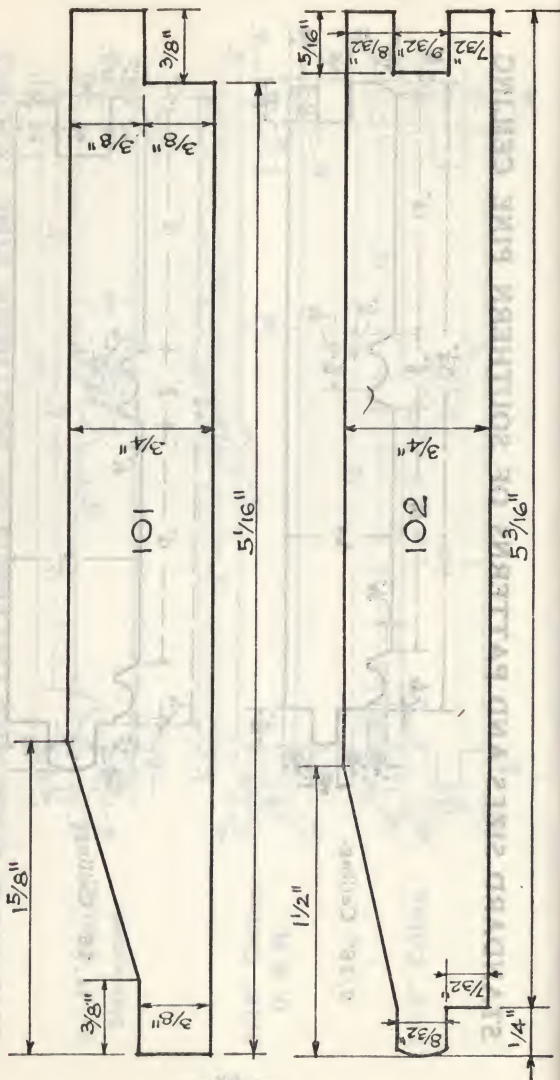


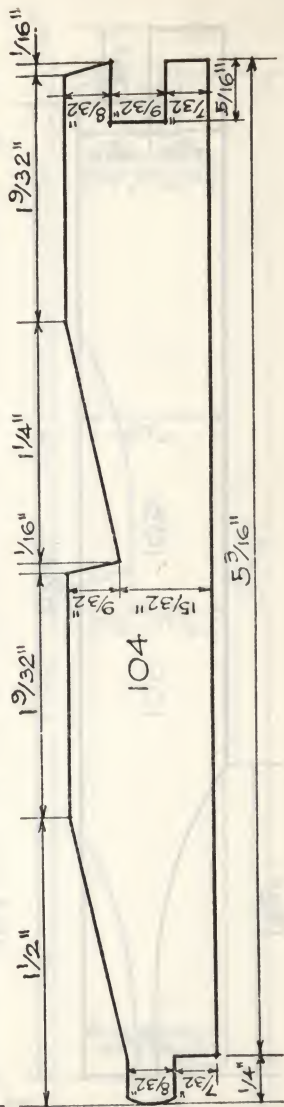
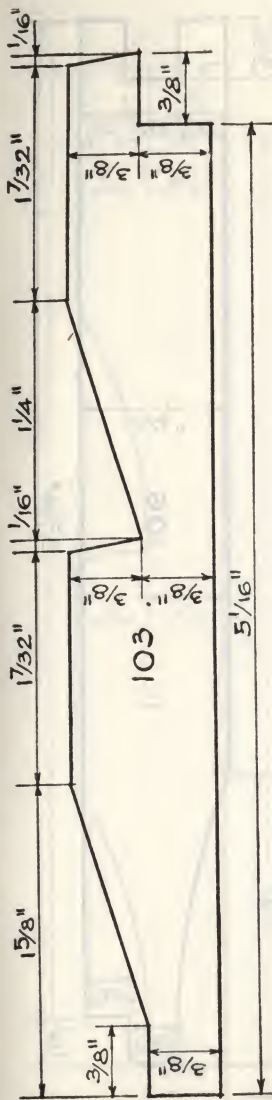
STANDARD SIZES AND PATTERNS OF SOUTHERN PINE CEILING

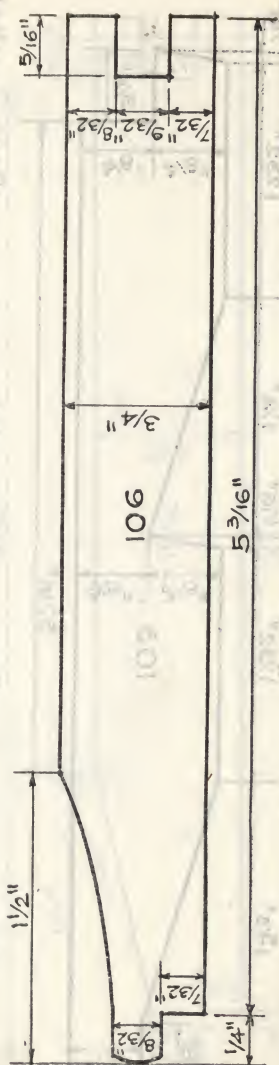
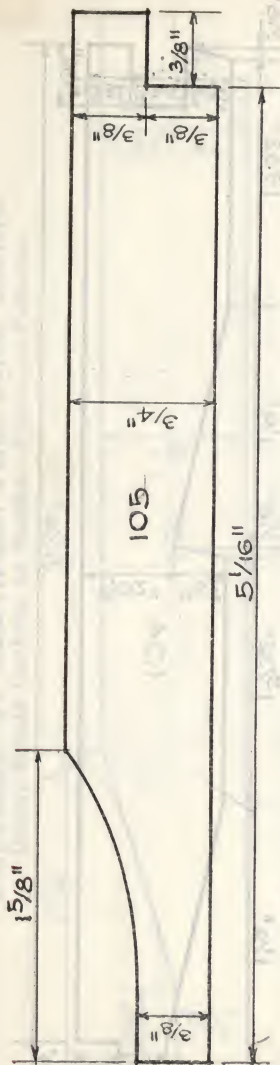


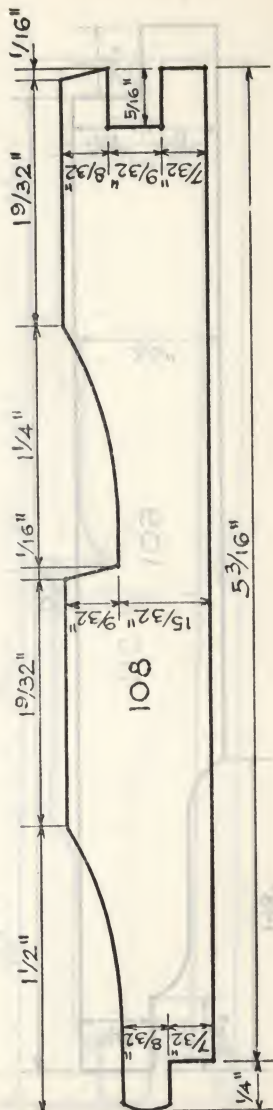
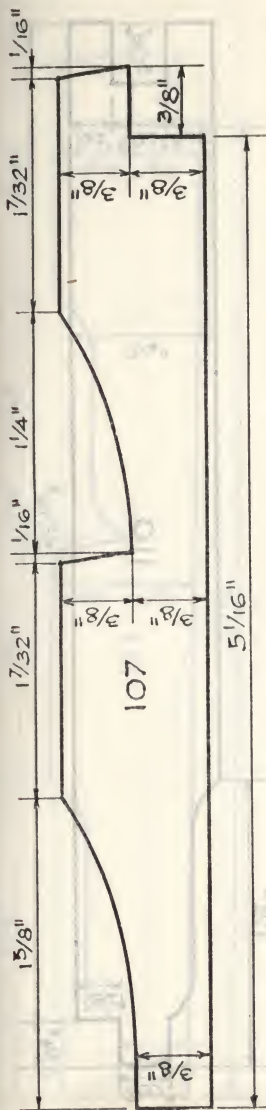
PATTERNS OF SOUTHERN PINE DROP SIDING

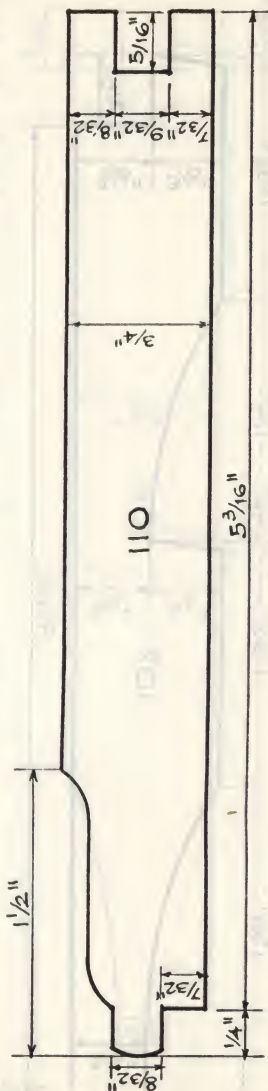
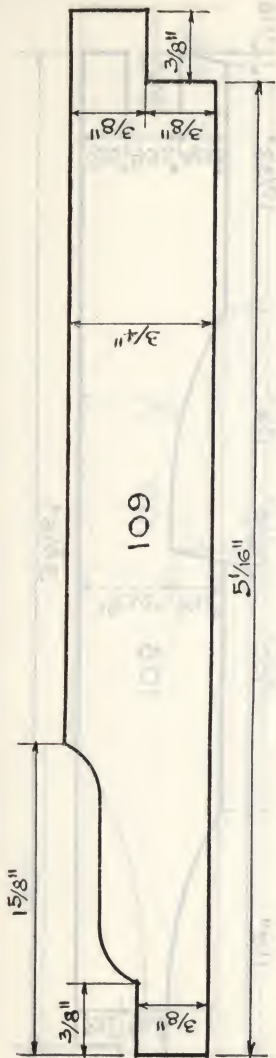
Orders Should Conform to Numbers Shown on Patterns

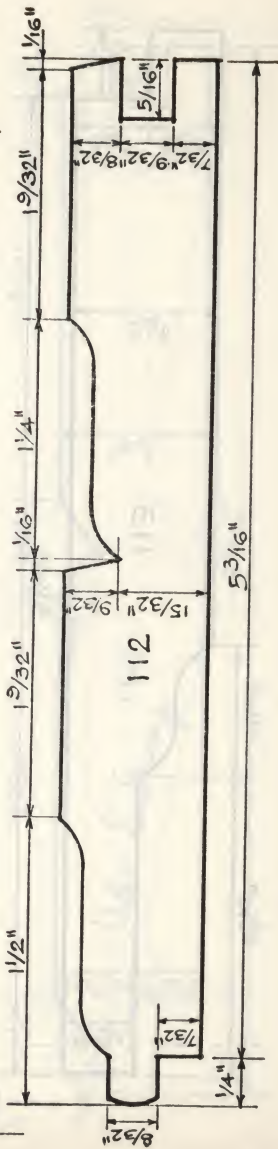
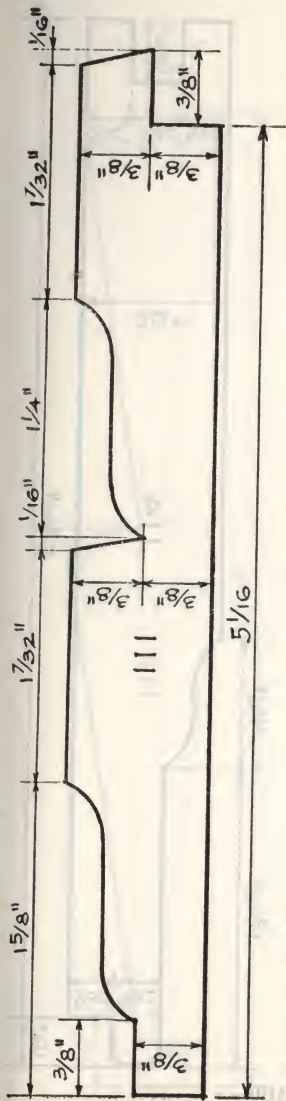


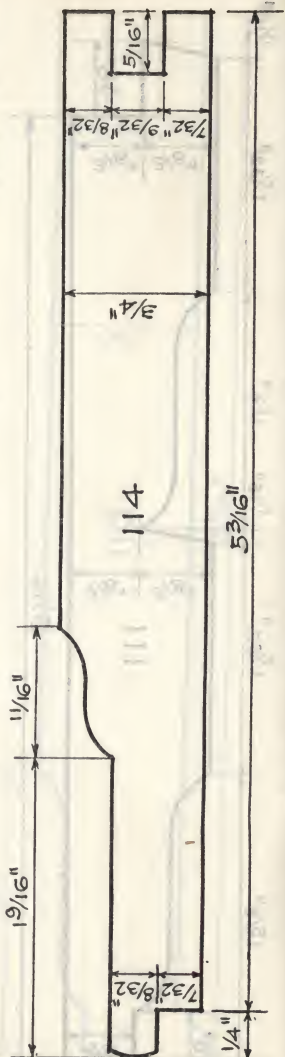
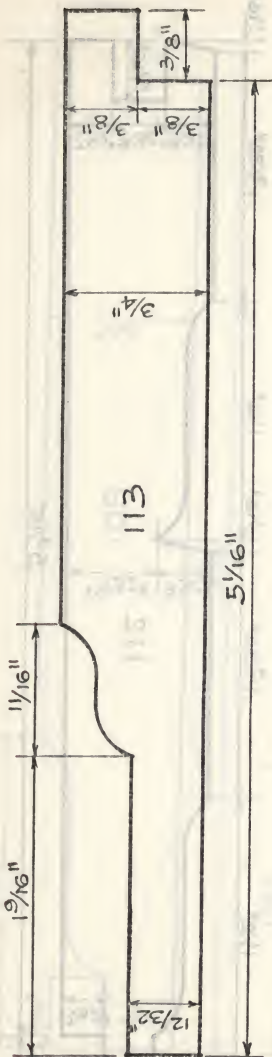


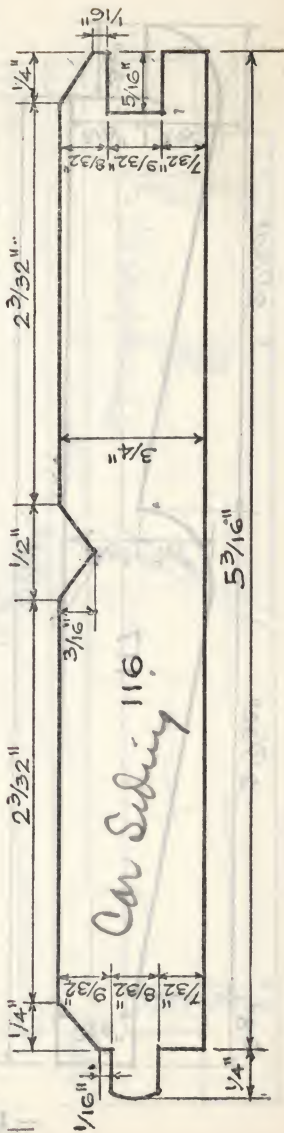
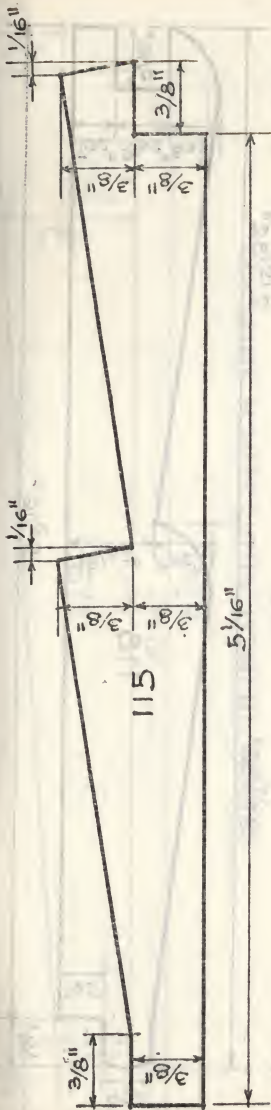




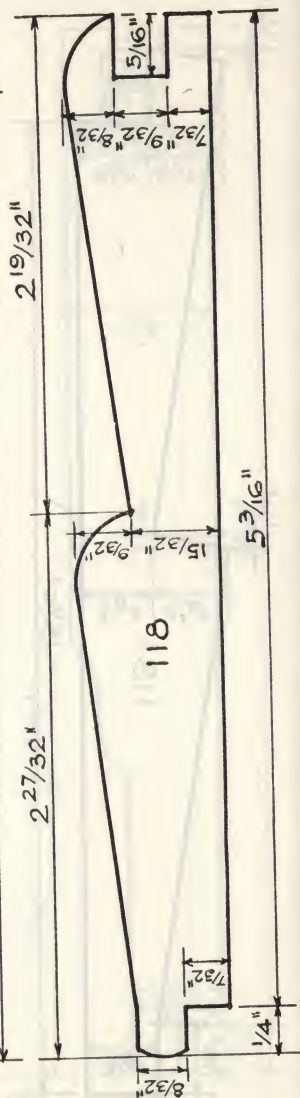
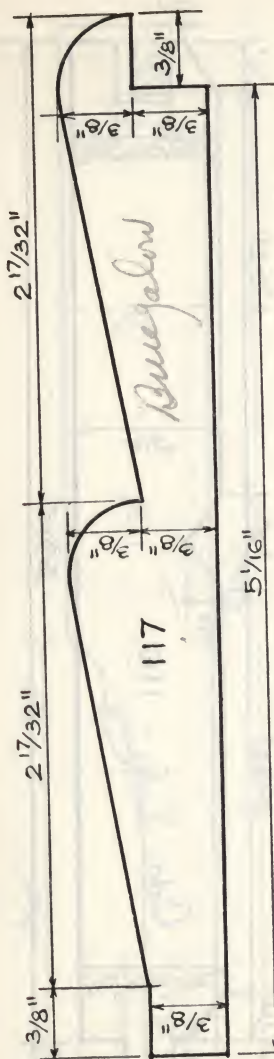


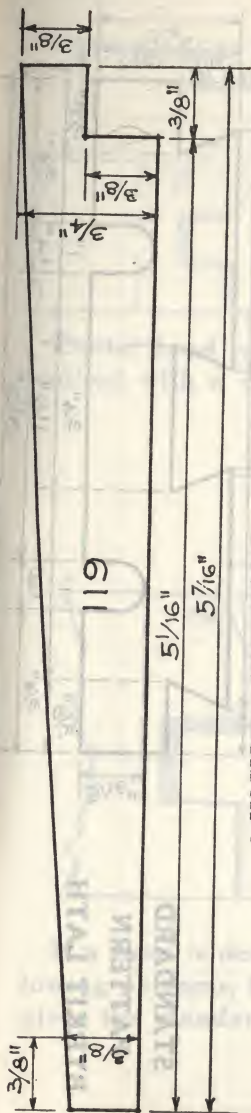




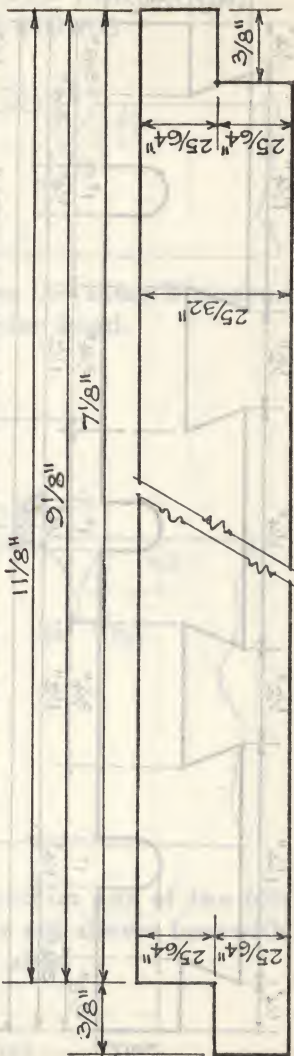


Can Siding

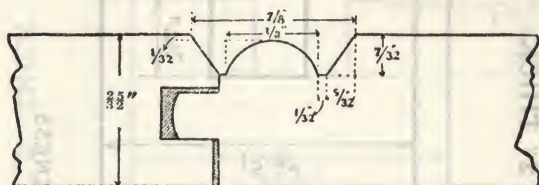




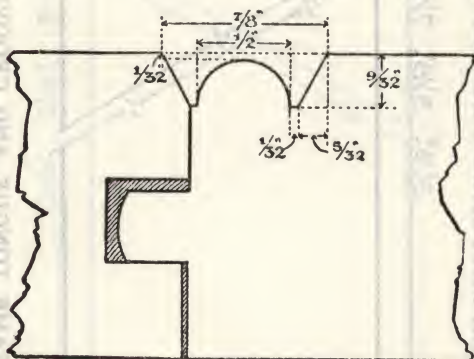
8-INCH, 10-INCH AND 12-INCH SHIPLAP



STANDARD BEAD FOR 1-INCH BARN SIDING

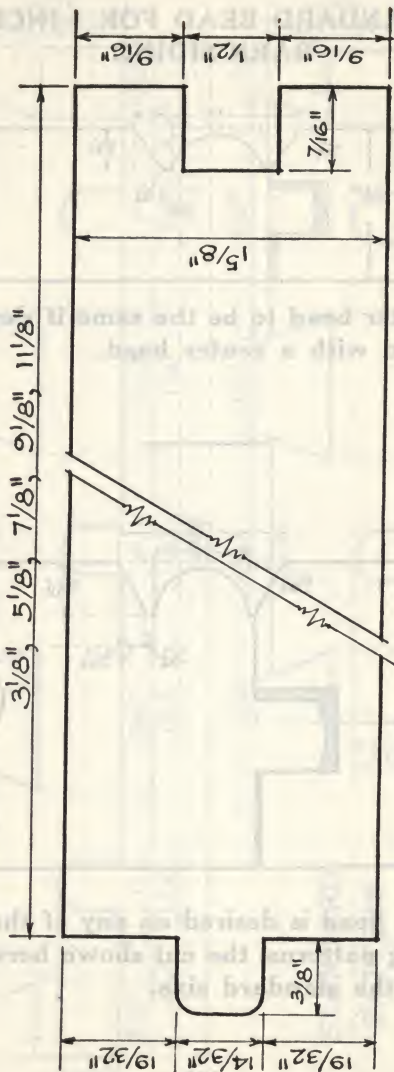


Center bead to be the same if desired worked with a center bead.



If a bead is desired on any of the following patterns, the cut shown herewith gives the standard size.

CENTER-MATCHED FLOORING OR DECKING, 2" THICK

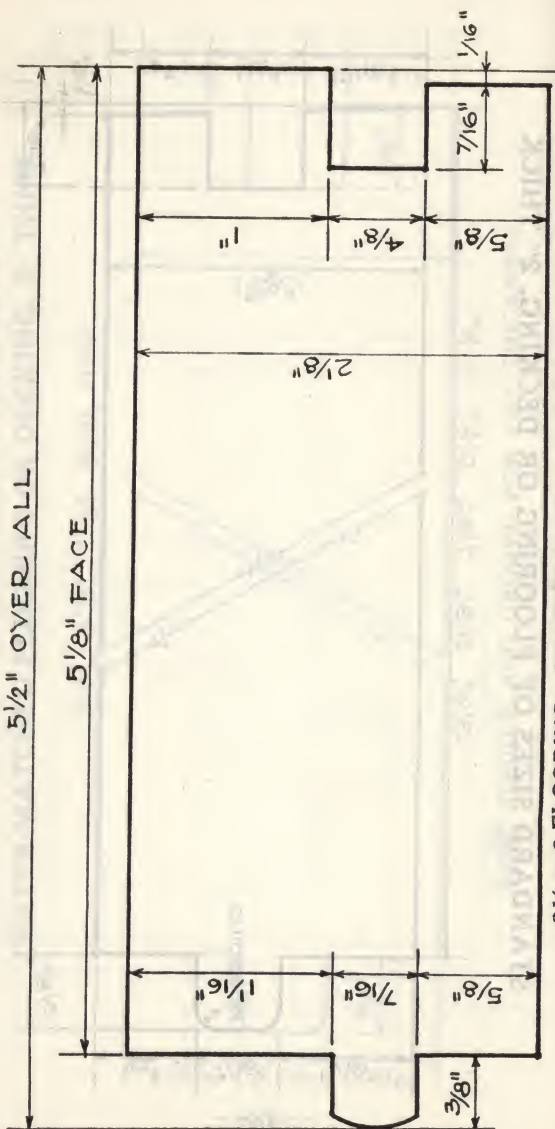


SAME TONGUE AND GROOVE FOR $2\frac{1}{2}"$ THICKNESS

STANDARD SIZES OF HEAVY FLOORING

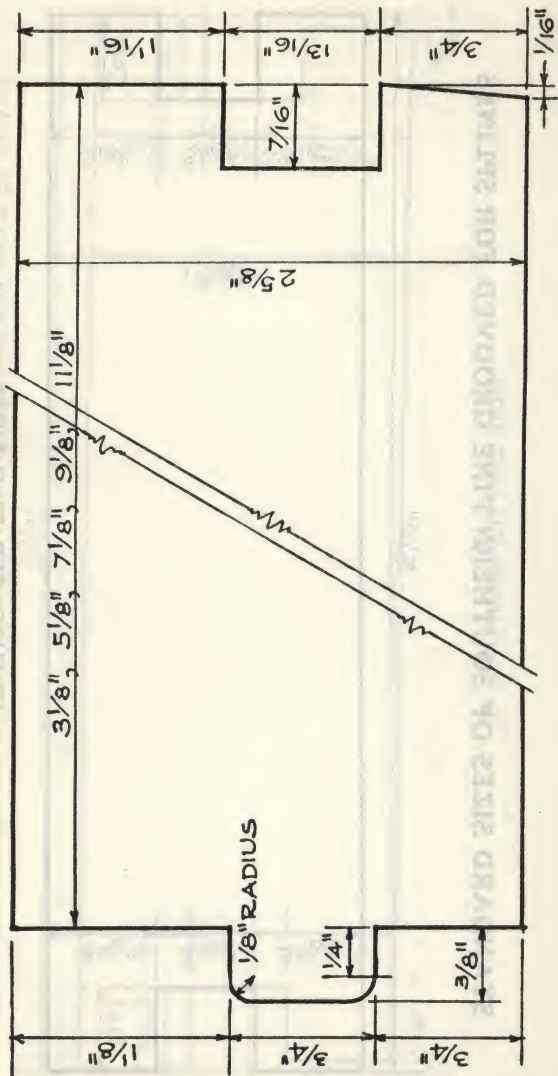
5½" OVER ALL

5⅛" FACE

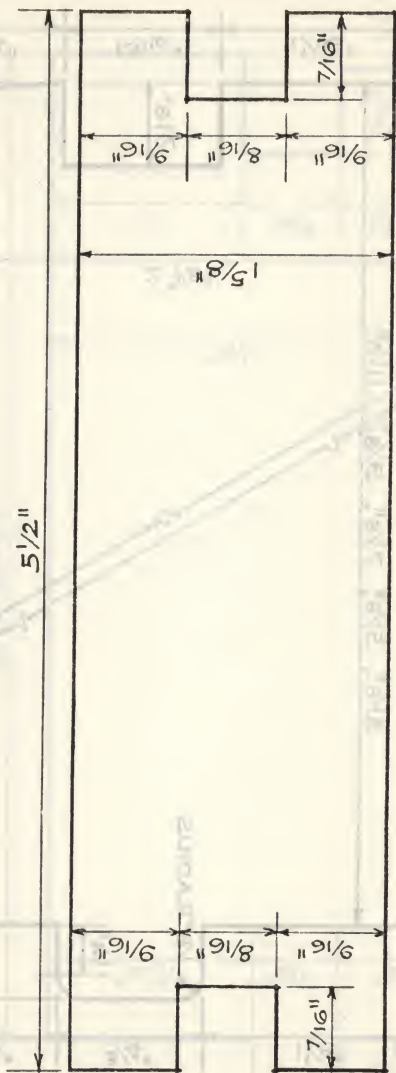


2½ x 6 FLOORING—SAME WORKING FOR ALL WIDTHS.

STANDARD SIZES OF HEAVY FLOORING

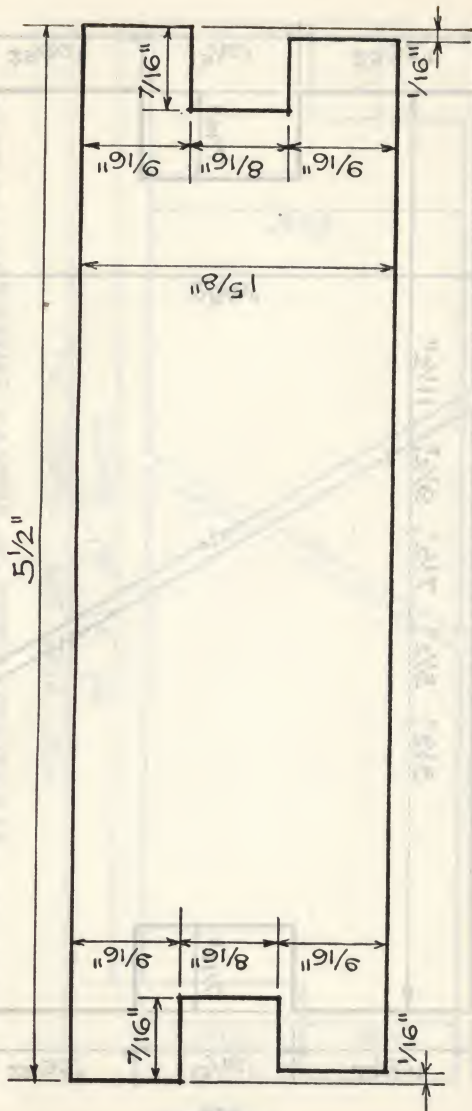


STANDARD SIZES OF SOUTHERN PINE GROOVED FOR SPLINES



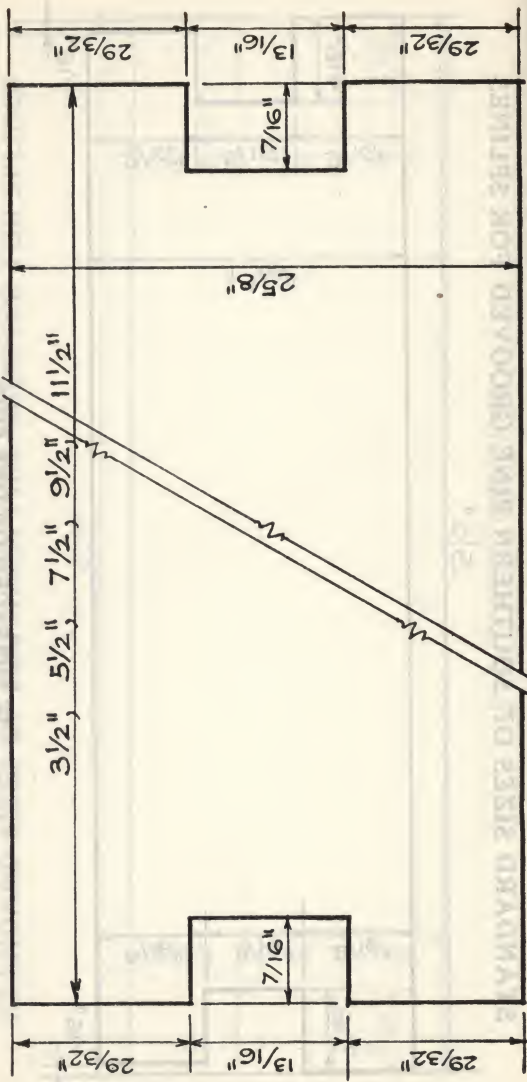
IF SURFACED TWO SIDES

STANDARD SIZES OF SOUTHERN PINE GROOVED FOR SPLINES



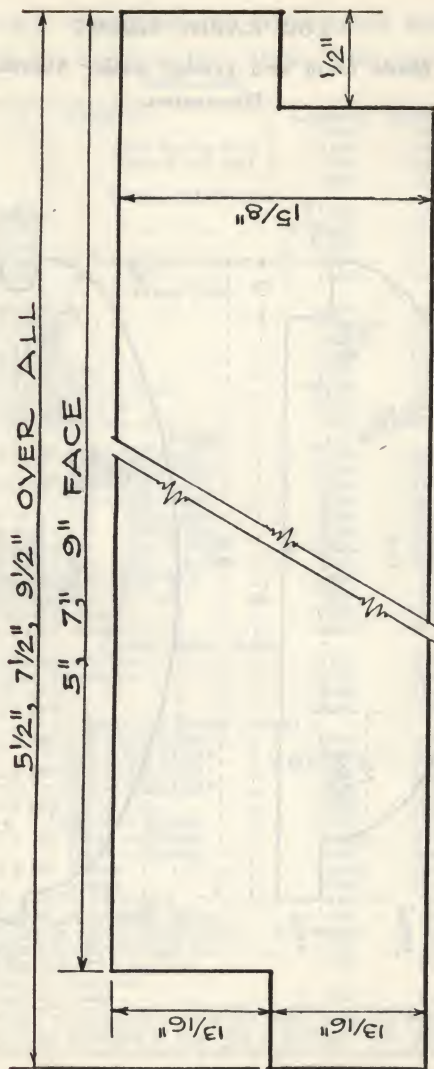
IF SURFACED ON ONE SIDE

STANDARD SIZES—GROOVED FOR SPLINES



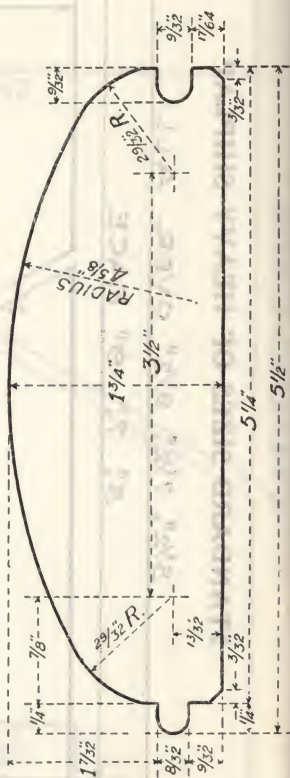
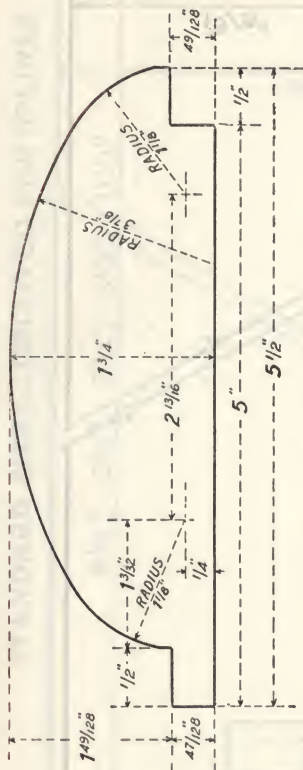
3" x 4", 6", 8", 10" and 12"

STANDARD SIZES OF HEAVY SHIPLAP



LOG CABIN SIDING

Made from and graded under Standard
Dimension.



AVERAGE WEIGHTS OF SOUTHERN PINE

Worked to Standard Sizes Unless Otherwise Indicated

Flooring		Longleaf	Shortleaf
1 x 3".....	(For Hollow Back deduct 100 lbs.)	2000	1800
1 x 4".....		2100	1900
1 1/4 x 3".....		2200	2000
1 1/4 x 4".....		2300	2100
Ceiling and Partition			
5/16" Ceiling.....		1000	900
7/16" Ceiling.....		1200	1100
9/16" Ceiling.....		1500	1400
11/16" Ceiling (and Boston Partition).....		1800	1700
3/4" Partition.....		1900	1800
Drop Siding			
1 x 6" (Pat. 116).....		2000	2000
1 x 8" and 10" (Pat. 116).....		2100	2100
1 x 6" (Pat. 117).....		1700	1700
1 x 8" and 10" (Pat. 117).....		1800	1800
1 x 6" (other patterns).....		1800	1800
1 x 8" and 10" (other patterns).....		1900	1900
Bevel and SE Siding from 1".....		1100	1000
Bevel and SE Siding from 1 1/4".....		1400	1300
Finish			
1 x 2" to 1 x 10" S1S or S2S 25/32".....		2600	2500
1 x 12" S1S or S2S 25/32".....		2700	2600
1 x 2" to 1 x 10" S3S or S4S 25/32".....		2500	2400
1 x 12" S3S or S4S 25/32".....		2600	2500
1 1/4" x 2" to 2 x 10" S1S or S2S.....		2900	2800
1 1/4" x 12" to 2 x 12" S1S or S2S.....		3000	2900
1 1/4" x 2" to 2 x 10" S3S or S4S.....		2800	2700
1 1/4" x 12" to 2 x 12" S3S or S4S.....		2900	2800
1" FINISH dressed to 13/16" add.....		100	100
2" FINISH dressed to 1 1/4" add.....		200	200
1 x 2" to 2 x 10" Rough.....		3400	3200
1 x 12" to 2 x 12" Rough.....		3500	3300
Casing - Base - Jambs			
Moulded Casing, All widths.....		2100	2000
Moulded Base, All widths.....		2100	2000
Jambs - 1".....		2100	2100
Jambs - 1 1/4 to 2".....		2300	2200
Strips and Boards (1 inch)			
1 x 2" to 1 x 10" S1S or S2S 25/32".....		2700	2500
1 x 12" S1S or S2S 25/32".....		2800	2600
1 x 2" to 1 x 10" S3S or S4S 25/32".....		2600	2400
1 x 12" S3S or S4S 25/32".....		2700	2500
1 x 2" to 1 x 4" D&M.....		2100	1900
1 x 6" D&M or Shiplap.....		2400	2200
1 x 8" to 1 x 10" D&M or Shiplap.....		2500	2300
1 x 12" D&M or Shiplap.....		2600	2400
1 x 2" to 1 x 10" Rough.....		3400	3200
1 x 12" Rough.....		3500	3300
For 3/4" dressed boards deduct.....		100	100
For 5/8" boards, all workings, deduct.....		500	500
For 11/16" boards, all workings, deduct.....		300	300
For 13/16" boards, all workings, add.....		100	100
For resawing, deduct for each cut.....		200	200
For Ripping, No deduction.....			
For 1 1/4" and 1 1/2", add.....		300	300

The average weights shown above are based upon test weights made upon large quantities of each item of Southern Pine lumber manufactured by the subscribers to the Southern Pine Association.

AVERAGE WEIGHTS OF SOUTHERN PINE

Worked to Standard Sizes Unless Otherwise Indicated

2" Dimension, Factory Flooring and Roof Decking		
	Longleaf	Shortleaf
2 x 2" to 2 x 8" Rough.....	3400	3300
2 x 10" & 2 x 12" Rough.....	3500	3400
2 x 2" to 2 x 8" Dressed to 1-5/8".....	2700	2500
2 x 10" & 2 x 12" Dressed to 1-5/8".....	2800	2600
For 1-3/4" add.....	400	400
For D&M, SL & Gr. for Splines, deduct....	200	200
2 x 4" to 2 x 12" Rough green.....	4500	4500
2 x 4" to 2 x 12" green, dressed 1-5/8".....	3800	3800
Heavy Joists, Timbers, etc. (over 2" thick)		
Rough, green.....	4500	4500
S4S 1/4" scant, green.....	4200	4200
S4S 3/8" scant, green.....	4000	4000
S4S 1/2" scant, green.....	3800	3800
T&G, SL & Gr. for splines, deduct.....	300	300
Car Siding, Lining and Roofing		
1 x 4" & 1 x 6" T&G 13/16".....	2200	2200
1 x 4" & 1 x 6" S2S 13/16".....	2600	2600
For 25/32" deduct.....	100	100
Longitudinal Sheathing and Stock Car Slats		
2 x 4" T&G 1-3/4".....	2400	2400
2 x 4" T&G 1-5/8".....	2300	2300
2 x 4" T&G 1-1/2".....	2100	2100
2 x 4" S2S to 1-3/4".....	2900	2900
2 x 4" S2S to 1-5/8".....	2700	2700
2 x 4" S2S to 1-1/2".....	2500	2500
2 x 6" T&G to 1-3/4".....	2500	2500
2 x 6" T&G to 1-5/8".....	2400	2400
2 x 6" T&G to 1-1/2".....	2200	2200
2 x 6" S2S to 1-3/4".....	2900	2900
2 x 6" S2S to 1-5/8".....	2700	2700
2 x 6" S2S to 1-1/2".....	2500	2500
Car Decking		
2 x 6" & 2 x 8" S2S & T&G 1-3/4" dry....	2800	2600
2-1/2 x 6" to 3 x 8" S2S & T&G dry.....	2900	2700
2 x 6" to 3 x 8" S2S & T&G green.....	3500	3500
2 x 6" to 3 x 8" S2S dry.....	3200	3000
2 x 6" to 3 x 8" S2S green.....	4200	4200
2 x 6" to 3 x 8" S1S 1/8" scant dry.....	3400	3200
2 x 6" to 3 x 8" rough dry.....	3600	3400
2 x 6" to 3 x 8" rough green.....	4500	4500
Miscellaneous		
Plastering Lath, 48" KD.....	500	500
Plastering Lath, 48" Green.....	1000	1000
Plastering Lath, 32" KD.....	340	340
Fence Lath, 1/2" x 1-1/2" - 48" KD.....	800	800
Bed Slats, 1 x 3" - 4'6", per set of 8.....	20	20
Bed Slats, 1 x 3" - 3'3", per set of 8.....	15	15
Byrkit Lath, 4" or 6".....	1800	1800

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